See General Review Article—Beginning Page 34

Industrial FINISHING

Reg. U. S. Pat. Office

Devoted to Product Finishing in the Factory

Vol. XIII, No. 3 | JANUARY, 1937 | $2.00 a Year

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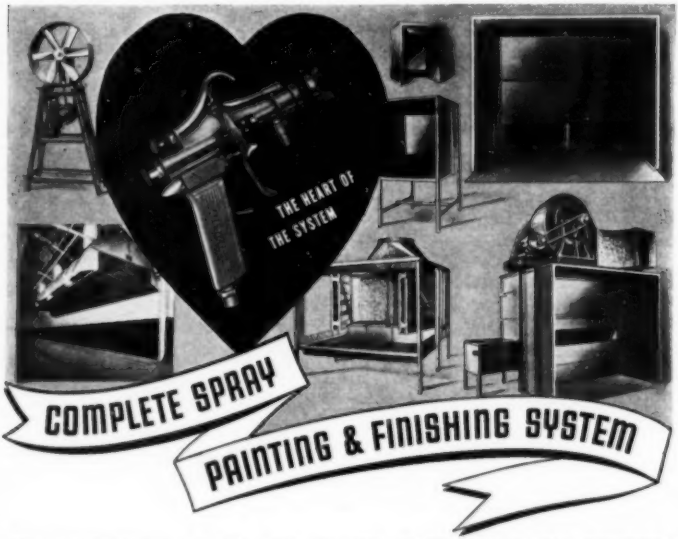
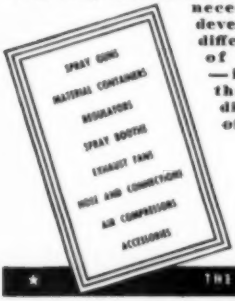


The completeness of the line of DeVilbiss Exhaust Equipment is typical of the entire DeVilbiss Spray-Finishing System — a system so complete that it includes every item of equipment needed for the application of better finishes in less time and at lower cost. Years of study, experience and service to industry have enabled us to solve the problems of thousands of finishing departments through the installation of exhaust systems. The requirements of industry vary so greatly that it has been found necessary to develop many different types of exhaust — including the simple direct type of exhaust, the indirect type, the downdraft type, the dry reclaiming type, the water wash type and the canopy type.

Each of the various types of DeVilbiss Exhaust Equipment has been especially designed to do, most efficiently, the job for which it is recommended. It is not just a booth, fan and exhaust pipe put together, but is engineered for the perfect functioning of these carefully balanced parts as a unit.

From these different types of DeVilbiss Exhaust Equipment can be provided an installation that will most satisfactorily serve your requirements. Should, however, you have a condition that cannot be met by one of the standard types, the facilities of our engineering and research departments are always available.



DeVilbiss

THE DEVILBISS COMPANY TOLEDO, OHIO U. S. A.

Letters from Readers of "Industrial Finishing"

Editor's Note — These letters have been promptly answered and all of the inquiries have been referred to advertisers in the magazine. They are published here to indicate or suggest certain interesting trends of thought and activity in the industry, and to encourage further inquiries, comments and suggestions. The names and addresses of firms or individuals whose letters are published here may be had by writing to this office, or letters addressed to them in care of this office will be forwarded immediately.

Finish for Toys

We have a request in our Buyers' Service Department for the manufacturer of vegetable dye paints for children's toys. Any information you may be able to furnish us as to the manufacturer will be greatly appreciated.—S. I. E. Co.

Finishing Radio Cabinets

We have an inquiry from Van Der Heem & Bloemsma, Stortenbekerstraat 177, Den Haag, Holland, for the names and addresses of American manufacturers of "labor saving devices for wet rubbing, finishing and polishing of small radio cabinets and sewing machine furniture." We presume the reference to "finishing" means spray booths and spray equipment.

We would greatly appreciate it if you would send us the names of four or five leading manufacturers of the kinds of apparatus listed so that we can send them to this concern. Perhaps you might want to advise these firms of this inquiry and we have no objection to your doing so.

The letterhead of the concern reads, "N. V. Radiofabriek en Ingenieursbureau Voorheen," but we shall leave the translation to you. We understand "Den Haag" is the name of the city we know as The Hague. — National Association of Furniture Manufacturers.

Roller Coating Machine

In the October 1936 issue, on page 12, is shown a picture of automatic machine used in painting Venetian blind slats. Will you kindly send me information as to where I could secure a like machine?—W. N. R.

The particular machine illustrated is made by the Gasway Corp., Chicago, Ill. Others are offered by Naz-Dar Co., Chicago, Ill.; Chas. E. Francis, Rushville, Ind.; etc.—Ed.

Silk Screen Stencils

I enclose a letter addressed to H. L. Hiett, Gen. Mgr., Prairie State Products Co., who wrote the article, "Stencil Screen Work in Production" in INDUSTRIAL FINISHING for November, 1936. I would appreciate it if you would fill in the name of the city on the enclosed envelope and drop the letter in the mail.

Incidently, if you have any literature, names of manufacturers, or other information regarding stencil screens, I would appreciate it if you would send it to me.—C. D. A.

Lacquer for Molded Plastics

We would appreciate any information you can give us relative to the following: 1) A lacquer that will have perfect adhesion on molded plastics such as beetleware. 2) Inks

A Good Sealer
—*He sure is!*
so is WALKER'S
No. 69 WOOD
SEALER
a Good Sealer

Sands easily. Seals pores of wood. Holds out finishing coats. Write now for complete information and SAMPLE. Use the Coupon below.

H. V. WALKER CO.
Makers of Fine Finishes
ELIZABETH, N. J.

H. V. WALKER CO., Elizabeth, N. J.
Send SAMPLE of your No. 69 Wood Sealer, and details.
Name.....
Address.....
City.....
State.....

that can be printed over a lacquer base and have a good opaque finish. 3) Where we can purchase the above.—M. J. Co.

Walnut Sap Stain

Will you please advise us as to the name of the firm that makes the walnut sap stain described in W. T. Smith's article in November INDUSTRIAL FINISHING?—A. Furn. Co.

We have written to Mr. Smith for this information.—Ed.

Cedar Chest Sealer

We have a material which we believe will adequately cover the needs of "H. T. Co." who asks for a "Cedar Chest Sealer" in December issue, page 77.—The Gilbert Spruance Co.

Spray Booth Lights

Will you kindly advise us how far from the spray booth we can hang electric lights, without the necessity of using vapor lamps?—S. J. Furn. Co.

We have just called up one of our friends who is an expert on this point, being one of the inspectors with the Indiana Inspection Bureau, and he tells us that no other type of electric light, other than vapor-proof lights, should be used either in or near the vicinity of a spray booth. He even goes so far as to state that all lights in the finishing room should be vapor-proof lights because the fumes or vapor of spraying and other finishing operations travel and spread throughout the finishing department.—Ed.

Heating Air for Finishing Room

We are after information regarding the heating of make-up air for a new spray room. Having no excess steam around the plant that might be used for this purpose, we are up against the proposition of installing a new high-pressure boiler to supply the steam for coils over which to pass the air to be heated. This will take up a good deal of room which we cannot spare and also be quite costly. We would appreciate hearing from you or any

of your readers who may have had some similar problem to overcome.

Briefly, we are up against this: We are installing a new DeVilbiss nozzle-type water wash spray booth. This is equipped with a 42-in. fan which will draw 18,000-c.f.m. (cubic feet per minute). It is our intention to induct 20,000-c.f.m. into the spray room to create a slight outward pressure of air in the room to prevent any dust from entering when a door is opened. As the new air will be taken in from outside the building, we must figure on equipment to heat it from about 10° below zero to a room temperature of 75° above. Any information you may be able to send us will be greatly appreciated.—M. M. Co.

Wood Finishing

I am interested in wood finishing and am looking for information that starts from the beginning, as I have had no previous experience in finishing. I am about to take over the sanding, buffing and spraying of a line of products that our company has previously contracted for. We are going to do this work ourselves. The thing I wish to know is whether your book on "Wood Finishing" covers this work from the beginning. If it does not do this, could you please tell me where I could get some technical knowledge of this subject? . . . . —B. W. H.

Venetian Blind Article

The article on Venetian Blind Finishes, written by Berkeley S. Vaughan and printed in December issue, interests me immensely. In this connection, would it be possible for you to send me a copy of the article—or, if you are unable to do this, a complete copy of the magazine?—V. B. M. (with Mfr. of Musical Instruments).

Remodeling Contractor Wanted

We have been receiving copies of your magazine during the past few years and appreciate it very much. We read it in the office and then turn it over to our finishing department. We would like to have you advise us with reference to the remodeling of our finishing department, or the erection of an entirely new building and the installation of new equipment. We would like to

(Continued on page 85)

Ultra-Speed

. . the Synthetic finish of the year for wood . . . . .

BECAUSE IT —

- Dries like a lacquer. Builds like a varnish.
- Dries dust free in seven to ten minutes.
- May be rubbed in 3 hours.
- Work may be shipped in 5 hours if necessary.
- Contains 40% solids.
- Produces from 40% to 90% greater mileage than lacquer.
- Alcohol proof. No Blushing Troubles.
- More durable for interior use than lacquer or varnish.
- Very reasonable cost.

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MANUFACTURERS OF
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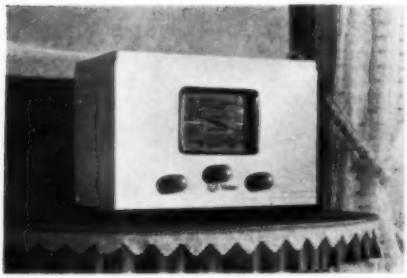
Chandler St. Springfield, Mass.

Finishing Radio Cabinets



PART IV

Lacquer Coats Rubbing Polishing

THE GENERAL PRACTICE for rubbed work (on a lacquer finish) is to spray on two coats over the sealer, without processing the first coat. Application is made by gravity feed, pressure tanks, or pressure on the drum; one plant employs a central system where the material is subjected to about 28-lbs. pressure in a 200-gallon tank and piped to the operators. In general the coating is liberal; it is customary to put on about all the surface tension will hold without sagging. One manufacturer has specified three coats of lacquer over the sealer on all rubbed work. Needless to say, this company's merchandise shows it plainly. The low-viscosity type of lacquer is almost universally used and a free-flowing material is preferred. The average lacquer used on radio work will run about 22% solids, and have a viscosity of about 40 to 50 seconds, Parlin No. 7 cup. There is a wide tendency to buy the high-solids lacquer, about 27%, and reduce it 3 to 1 or 4 to 1 to spray. Contrary to the data supplied here with regard to sealer, this is an actually economic practice due to the fixed price on licensed materials, on a sliding scale according to solids.

The Lacquer Coats

Some manufacturers use a semi-gloss lacquer entirely for rubbed work in the belief that orange peel is reduced and consequently the amount of rubbing labor is also diminished.

The flat or, as it is now more commonly called, semi-gloss lacquer retains a prominent place in the radio field. In general it is made on the gloss lacquer as a base, by adding a flatting agent. The sheen has brightened considerably in late years and the old dead flats, with their slaty gray surfaces, are entirely out of the picture.

The common practice is to apply one coat of sealer and one flat, though some work is done with

..by W. T. SMITH

an intermediate coat of gloss; some is done with two coats of sealer and some with two coats of flat. The practice of using one coat of sealer, one of gloss and one of flat has much to recommend it, providing a deeper more brilliant and much tougher film. In general, with the exception of the new deluxe table models in miniature, which have been popularized in the last year, it is sufficient to say that the semi-gloss criterion includes practically all merchandise retailing under $75.00, above which most of the work is rubbed and polished.

One hour air-drying under normal room conditions is the customary interval between coats, and the interval between the final coating and rubbing ranges from four hours upward. Theoretically, perhaps 75% of radio work is now specified for an overnight dry before rubbing (which means from 16 to 30 hours) but every year thousands of cabinets still go into the packing cases, bearing a 3-coat rubbed and polished finish, some six hours after their appearance in the finishing room. Forced drying of any kind, other than closing the windows and turning on the steam at night, is not practiced on radio cabinet finish coats.

Photographs, courtesy of R. C. A.-VICTOR

The use of drag conveyors, carrying the cabinets past the booths and eliminating the off-bearer, greatly facilitates production spraying, but since there is only one plant so equipped throughout, it cannot be considered general practice.

Rubbing the Lacquer Finish

Rubbing is of vital importance to the final appearance of the product. It requires considerable skill and time and is expensive. A few large producers still employ the time honored pumice and water or oil, with apparently satisfactory results, but there is a general antipathy to the use of loose abrasives of any kind.

The fact that perhaps 50% of the radio cabinets are rubbed "green," allowing the abrasive to grind in or imbed itself in the film, especially in corners and mouldings; the inevitable soiling of the inside of the cabinet with a white slush; and the inability of piece-rate and bonus rubbers to find time to brush out corners thoroughly, accounts quite justly for this attitude. For several years therefore there has been wide usage of the "gas sand" operation so common in automotive body circles. A carborundum paper of about 320 mesh abrasive is used, keeping the work wet with a cutting agent as a commercial rubbing liquid (usually soap emulsions), a 50/50 or 60/40 mixture of mineral oil and petroleum naphtha, or a straight naphtha.

With the final complete metamorphosis of the radio finish in 1935 to a universal high polish on all rubbed work, the use of any type of oil rub became necessarily passé. On the green lacquer—or to some extent on any lacquer — the oil will inevitably "sweat back" in 24 hours or more and no chemical agent has been developed which will consistently and completely remove it in factory process. True, a combination of rottenstone, water, a burlap pad, and plenty of elbow grease will go a long way as a supplement to an oil rub, but only a few of the smaller shops feel that they have the skillful labor or the time factor to make this practice generally acceptable.

The generally accepted practice now, and one which is not new but which has only lately gained wide impetus, is to gas sand with naphtha, as just described. Then follow by a thorough "compounding" with a commercial paste rubbing compound—again emulating the automotive industry—and a final clean-up with a polish to remove the inevitable slight haze left by the compound. This is unquestionably the most satisfactory method for producing a maximum polish on work that is likely to run slightly soft; and despite the three operations it will require no more time than any other type of rub. The gas sanding cuts off nibs and excresences and removes orange peel. The compounding — the most important factor in the entire rubbing program—removes any scratching and produces the near perfection of surface, while the polish, as indicated above, imparts the final brilliance.

Rubbing and Polishing Machines

Machines, from the old stroke rubber to small air and electric oscillators, may be fitted with pads of carborundum paper and

used for the gas sanding operation on flat surfaces. The writer has seen rubbing machines with shaper pads used in rubbing curved pilasters with entire success. The customary practice is to attach a pad of paper about 1-in. thick to the machine, which serves the dual purpose of cushioning against too ready cutting through, and facilitating renewal of the cutting surface, which is accomplished by merely tearing off the surface sheet.

Compounds are supplied in paste form. They range in color from a light buff to black, the preference being toward the latter in the belief that any inadvertent residue in corners will be less conspicuous. Since this color is due to the addition of coloring matter, in many cases, and the abrasive itself is not actually colored at all, the actual efficacy of the dark color is questionable. One concern attempts to overcome this by the use of a compound of their own preparation based on an imported hard charcoal as an abrasive. The principal difficulty here seems to be that the charcoal is insufficiently hard or sharp to compete strongly with crystalline abrasives as a cutting agent, although it has a decided polishing effect.

The compounding is essentially a hand operation. Attempts to perform it mechanically with flexible shaft equipment or small hand disc polisher have not been successful. A method of completely polishing small cabinets from the raw lacquer surface on, without sanding, has been developed by the writer and has been discussed under a separate heading. Finally, let us reiterate here that the value of thoroughness in this compounding operation cannot be exaggerated.

Polishing Compounds

The polish question has been thrashed out pretty thoroughly by radio manufacturers since the coming of the high luster finish. A few adhere to wax, but a wax sufficiently hard to produce the polish desired, requires a prohibitive amount of labor in rubbing down. Every finisher has his pet polish formula. Investigation of these will show 90% of them to be variations of the old linseed oil, soap, water, turpentine, alcohol, ammonia, vinegar, and what have you, shaken up in a bottle. They may be dismissed en masse by the simple fact that, for present polish requirements, they just don't do the work.

In modern commercial polishes for the removal of compound haze, we have two general types (omitting waxes of any form) to wit: the sulphonated-oil-emulsion type, and the water-ester-abrasive type. This classification will embrace practically all materials offered for this purpose. Those of the first type may be eliminated at once, since their function of producing an immediate brilliant luster (and they do) lies in the fact that a very thin oil film is laid over the surface—the rest being a matter of refraction. The effect is not permanent. Usually they become dull in 12 to 48 hours. While they are excellent for household use, where furniture is cleaned perhaps twice a week, their employment as a means of producing a permanent luster, as a final manufacturing procedure, cannot be advised. They may be recognized by their thick milky appearance and a very faint greasy odor.

This leaves only the water-ester type which is typified by one or two nationally-advertised automobile polishes which "will not attack the finish on your car." If you believe that, go ahead and use it on *your* car. Since a permanent luster must be the result of mechanical rather than chemical agents, and since the depth and permanence of the polish are dependent directly on the mechanical energy expended in perfecting the surface, these polishes are the logical polishing agents. They are composed of approximately ninety-odd percent water, a little high-boiling ester solvent, such as ethyl lactate or cellosolve acetate, and a small amount of rottenstone, rouge, or similar amorphous abrasive.

The ester softens and smooths the lacquer surface, retarded in its action by the water, and the abrasive does the rest. When applied with a cloth pad and rubbed briskly, then being allowed to dry a few minutes and rubbed with a soft dry cloth, they pull with a distinct squeak and leave as high a polish as it is possible to attain on a furniture lacquer. The residue of the light abrasive is so slight that it is quite effectually removed by the polishing cloth.

By the foregoing outlined method it is entirely possible to produce a suprisingly brilliant polished finish over two finish coats of clear lacquer, the second coat following the first in one hour, and rubbing four hours later. It is not intended that the writer be understood as condoning this practice, but it can be and is done with surprisingly satisfactory results. Needless to say, it cannot be done with a high-viscosity type of high-resin lacquer, as such a lacquer will not withstand the gas sanding in this drying schedule, or come up to a high polish as may be expected.

Industrial Finishing Magazine
Indianapolis, Ind.

Gentlemen:

Enclosed please find check for two dollars ($2.00) to cover one year's subscription for the Industrial Finishing magazine, beginning with the October issue of this year. Please send October and November numbers by return mail.

Have not taken your magazine for several years. Had lost interest which was renewed yesterday while in the office of one of the largest manufacturers of radios, when my attention was called to article No. 2, beginning on page 11 of your November issue, written by Mr. W. T. Smith.

I have been servicing and selling finishing material for the past thirty years, and consequently have read many articles on finishing in your magazine. The article by W. T. Smith in my estimation, is one of the most comprehensive and practical articles I have ever read on furniture finishing.

The article by Smith shows not only technical knowledge, but practical experience, a combination which is rarely seen in magazine articles; also, this type man is seldom found in the finishing room or the laboratory.

Would it be asking too much to have you forward the address of Mr. Smith to the writer? Would like to see him personally if it can be arranged. Articles of this type are certainly a great aid to all parties concerned with radio cabinet finishing.

Very truly yours,

W. F. Dentzer,
650 Conshohocken
State Rd.
Bala-Cynwyd, Pa.

Production Time Limit

AND ITS POSSIBLE EFFECT ON THE FINISH

by E. A. Zahn
Works Laboratory, General Electric Co.

IN THE manufacture of large apparatus there is generally a time limit allowed which includes all operations up to the shipping point. The first operations generally receive the least attention concerning time, but when the job is supposed to be shipped it is often found "held up" by the painters. They, in turn, are given about one day in which to do three or four days' work. Even the inspectors must necessarily make allowances on poor paint jobs in order to meet shipment time.

If shipment is delayed for any reason, the customer is very often notified that the job is being painted, or it is in the finishing department and the management prefers not to rush this delicate work. It seems too bad that the writers of such letters don't generally see the artistic scrambling that the painters are doing in order to overcome someone else's errors.

There should be sufficient time allowed for a first-class finish on every piece of apparatus, regardless of whether it is to receive this type of finish or something of lesser quality. The painters have been rushed to distraction and many of them who should be eager to take a few steps back from the completed piece and admire its beauty are now anxious to see it crated before someone remarks too much about its poor appearance. Is the customer justified in criticising this would-be beautiful addition to his already neatly kept apparatus rooms? Many of us would complain loudly if the finish should wear off from a one dollar pencil after only one year of service.

Shortening the time allowed for painting or finishing, just because the work gets behind its schedule elsewhere in production, is unfair to the finishers, the product and the customer . . . as it almost invariably results in an unsatisfactory finish, which is a discredit to the manufacturer.

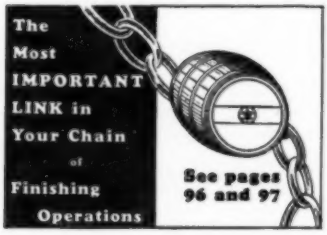
When mass production painting of small parts is under way there is equally as much trouble experienced as on larger apparatus, and often times it is much more serious, because if one day's failures finally get into the hands of 50 or more different customers, there is generally a well timed

shake-up of the members of the finishing department. In this case it is generally found that all plans and layouts of these parts are made, after which someone suggests a spot in the production line where these parts might be painted. Perhaps there is a paint available that will do a good job under these conditions, but more often than not it requires a special material. After a material has been designed, other changes are often made in the set-up without having taken finishing into consideration.

Finishing should be considered the final and one of the most important operations of the entire production process. The designing engineers should know exactly how much heat the parts can safely stand during baking operations, as well as every other detail involving the entire routine. If the laboratory is consulted during the time of development, then there is always someone to go to when something goes wrong unexpectedly.

The painters are often told about the rush shipment date before they are told what finish or color is to be applied. In a case of this kind, it is always found that somewhere along the line something went wrong and used up all the time originally allowed for painting. After several experiences of this kind, it seems that there should be some allowance time set aside other than that for the painter.

A painter of good reputation regarding his line of work can soon lose interest if he is not given the necessary instruments to produce an attractive finish. His first desire to become a painter probably was due to the fact that he once noticed how different and desirable an object could be made to look in such a short time, but this "short time" turned out to be a little longer than he at first thought. If he is rushed in his work he loses his first and main principle.



Hilo Employes Get Extra Pay

Mr. Carl J. Schumann, President of the Hilo Varnish Corp., manufacturers of paints, varnishes and industrial finishes, Brooklyn, N. Y., has announced that employes with the corporation over one year, have been given bonuses ranging from one to three weeks pay because of service rendered. This corporation was established in Brooklyn, N. Y., 73 years ago, during which time bonuses as high as 23.8% of total yearly pay have been given its employes.

"Neoprene" from Du Pont

The word "neoprene" has been adopted as a generic term for the chloroprene polymers formerly sold by E. I. du Pont de Nemours & Co. under the trade mark DuPrene, the company announces in a letter to rubber fabricators and other users of the product. This action is taken in order to provide manufacturers with a name which can be applied both to the unvulcanized material and to the products made from it, corresponding to the accepted usage of the word rubber, the letter says. The new name "neoprene" will not be trade marked and may be freely used by rubber manufacturers to describe products which display the distinctive characteristics of this unique material.

Aircraft DOPE REJUVENATION

by G. L. Hardy

REJUVENATION of painted surfaces apparently is a lost art, due to the growing fact that since the advent of the spray gun, painters of a sort, are made overnight. Their ability seldom reaches beyond the control of the gun, with never a thought of how their efforts of application are to be worked over in the future.

Rejuvenation of doped surfaces means the amalgamation of the dope coatings that have checked and cracked with age—with new life put into the old coatings. If caught in time this operation is really simple, though tedious. The cost ranges from one-fifth to one-half of a recover job. A careful survey is necessary so that the worker will know what to expect and guard against when the old surface is recoated.

Rejuvenating an aged surface often results in the finish raising into a rough pebble effect and, in many instances, within a brief period of a day or so the finish will break into an appearance of alligator scales, whorls, checks or long cracks. This is entirely due to improper application of the rejuvenator and an improperly cleaned surface—or the manufacturer has used hard drying gums in the formulation of the dope vehicle. This is especially true since high deposit dopes have come into use.

If the refinishing dope is shot over the old finish without first removing the wax and scum, and without sealing the cracks, you get a lot of circles of paint remover formed by the wax in the cracks, and the resultant effect is a scaley finish.

I have probably reclaimed more fabric surfaces than most men and to date all of them have been a success . . . never once has the Department of Commerce turned down any of my work. It has been no trick at all to make most reclaimed jobs live at least two years more. You see, I used this principle years before rejuvenators appeared on the market.—

G. L. Hardy

Preparing the Surface

A successful way to prepare the surface is to first wash out every trace of wax, grease and scum, using a strong soap powder solution in hot water, or a crystalline deturgent such as tri-sodium phosphate. Make this solution strong enough to chew into the old finish, but do not work too large an area at one time. Do not allow the cleaner to run down in streaks, as sometimes these

show through the final applications.

Carefully "hose off" each section as it is cleaned. After drying, it is not necessary to sand for tooth on a colored dope surface, but it is absolutely necessary on an aluminum dope surface. In fact sanding colored surfaces, even with fine grit sandpaper, causes extra work due to the fact that in every instance the scratch marks from grit of the paper will open into wide furrows that will need extra filling and sanding. Even though the cracks have a raised lip, it is preferable to let the rejuvenator amalgamate the lips and let them shrink to the rest of the surface. Then sand smooth after the fill coats are applied and dry.

An aluminum dope should be well sanded to remove the excess oxidized powder. When any of this chalky powder is left on the surface you have a problem similar to applying a new dope finish to an unprimed porous sheet of metal. The more aluminum you sand off, the closer you get to the clear first coats which are most essential to give new life. You can not renew the life of brilliancy of an oxidized bronze powder.

Unless the rejuvenator has penetrated sufficiently to entirely slack the fabric, your labor plus the material costs will be wasted. The worker should not become alarmed at the appearance of loose wrinkled panels, as the more of this that takes place, the greater the success of the operation and the more life given to the old and new coatings. It should take at least overnight for the fabric surface to regain streamline (free of wrinkles), and eight to ten days for it to become fully taut or drum tight. A one-hour flight will tauten it more than a week of dead storage.

Should the colored dopes be chalky on top or have a dry scale, sanding will be necessary if the cleaning solution does not remove it entirely. If the scale is amber in cast it means that a clear coating of some sort has been shot over for a finish gloss; and this positively must be removed as it will not amalgamate with the under coatings. Sanding here is essential, but be sure to use as fine a paper as possible to get the mass off with a minimum effort.

The Application Method

The rejuvenator may be applied with either brush or spray. As to which is the most successful, it is a matter of individual opinion or shop and contract conditions. For best results, I favor the spray for applying the rejuvenator, using as low pressure as possible. With the spray you may lose more material in transit from the gun to the work, but you will gain a much smoother surface than can be obtained by brushing. Spray applications are much more uniform than brush applications. To brush a slack soggy surface means that the brush will raise the softened mass into a smear of brush marks, and it will require extra filling and sanding to smooth out this roughness. Brushing saves lots of amalgamator which is costly in packaged goods, but it also calls for more material to fill and hide the roughness of brush strokes. The extra dope used in filling equalizes the costs of the spray waste, and increases weight plus added sanding labor.

After the surface has been thoroughly cleaned, apply as many coats of the rejuvenator as is necessary to make the fabric entirely slack. Continuous application one-half hour apart with brush coats, or ten to fifteen minutes apart with the spray, is the correct application routine. While the rejuvenated fabric is still wet and slack, apply from two to four coats of clear dope. It is impossible to specify the exact number of clear coats needed. This is best judged by the amount of old film removed and to the extent of the cracks and checks in the old surface that need filling. THE FIRST COAT OF CLEAR DOPE MUST BE APPLIED WHILE THE REJUVENATED SURFACE IS STILL WET, so that the solvents of the first dope coat will make the plastic constituents of rejuvenator permeate the old finish.

Two clear coats, followed by two coats of aluminum pigmented dope, are usually sufficient to regain the proper fill and tautening. The operator must remember that he has added a plastic slow-drying film to the old finish, and the more that this is wet, the slower drawing again of the fabric. Therefore, in applying new coatings, it is not necessary to slacken off the surface again.

Allow ample drying time of at least an hour between the building coats. Allow at least overnight for the fill coats to shrink and settle into the cracks and checks before sanding. Two-hundred-mesh aluminum powder is better suited than fine aluminum pastes because the coarser mesh powders leaf and fill better than the fine wet paste.

When sanding operations are completed, the worker may proceed with the color applications in the usual manner. Low pressure and good thinner are essential to the best success in dope spraying. I advocate low pressure, uniformly thin wet coats, and a high grade reducer to avoid dry laps and streaks that high pressure and cheap thinners cause. Fifty pounds pressure at the gun, with a compressor of the right cubic foot capacity for the gun, is ideal.

Lacquer and Synthetic Enamel Refinishing

These two finishes need combating instead of rejuvenating as their high gum content renders them unfit for new life of any period.

A lacquered surface that has checked must be cleaned in the same manner as prescribed for dope. Apply two or three coats of aluminized lacquer, using 200-mesh aluminum powder and a good grade of slow-drying thinner that has good solvent properties.

Allow the lacquer to dry overnight, or at least to full shrinkage, so that after top coats are applied there will be no further settling into the cracks and checks. Use 1-lb. of 200-mesh aluminum powder to the gallon of clear lacquer. If the lacquer is thick enough to thin equal parts, then as much as 1¼-lbs. per gallon may be used. Sand with No. 240 wet-or-dry sandpaper and water. Clean off the sanded work real well and apply the desired lacquer surface. Use high grade thinner so that the new coats will bite into the old finish and be thoroughly anchored.

Synthetic Enamel Reclamation

There is no hope for amalgamation or rejuvenation of this mate-

rial (synthetic enamel) in any way other than to follow the lacquer procedure, using aluminum powder in the clear synthetic vehicle for the fill coats — after cleaning and sanding the lips of the checks and cracks to a flush surface. Scratch marks from the sandpaper will not be objectionable here. About 1½-lbs of aluminum powder to the gallon of clear vehicle is sufficient for the fill coat. Water sand the synthetic or lacquer fill coats. Never gas sand.

Rejuvenator Formula

Tri-Cresyl Phosphate (Solvent Plasticizer)	5%
Clear Dope	20%
Butyl Acetate (Normal)	10%
Ethyl Acetate	55%
Methyl Acetone (Refined C. P.)	10%

(Measure these materials by volume, not by weight)

It is always advisable to take the ship to a reliable repair station for this work . . . . A consultation with the Department of Commerce inspector before rejuvenating is a wise procedure, as he may condemn the fabric as being unfit for further use.

This material is sold as fabric rejuvenator, but in reality it is miss-named, as fabric cannot be rejuvenated. It is a dope rejuvenator only.

Finishing Room Fires

FIRE is no respecter of persons; it gets started occasionally in the well-kept shops, just as it does in those where carelessness prevails. Constant vigilance is the price of no fires—or rather few fires.

A concern with which I am acquainted has been through several small fires, fighting them and learning new things and practices of which to beware, each time. But there is always a first time or a new way for a fire to start.

Here is a modern maple bedroom suite in which the simplicity of early American styling is blended with modern sophistication. The unusual wood drawer pulls add a novel decorative treatment. This new suite will be among those shown at the January Market at the American Furniture Mart in Chicago. A product of the Thomasville Chair Co., Thomasville, N. C.

Recently this firm had a fire that was caused by the ignition of paint and lacquer which accumulated on dollies used to carry work through the baking oven. These dollies had been in use for several months without causing any difficulty or trouble. Suddenly a bad fire occurred causing a loss of all the work in the oven and other incidental damage which tied up production for a while and made necessary the repainting of the finishing room.

Investigation disclosed that paint and lacquer had accumulated on these wood dollies over a period of several months. It had built up to such a thickness that under baking heat it became soft enough to run off the edges of the dollies and drip through the steel grill of the oven floor onto the metal shields of the gas-burner tunnels. These shields, being very hot, ignited the melted paint which, in turn, blazed up and caused the paint-covered wood dollies to take fire. This loss of material and time was serious enough to point the way to the adoption of metal dollies and a regular cleaning schedule.

In another department of this same shop an electric oven is employed to bake an oil enamel used on small gas-heater parts. These parts are placed on wood racks in tiers and run into the oven on metal dollies. This procedure went on for a time without causing any trouble, but finally, for some reason not definitely determined, an oven load of parts and several refrigerators caught fire and were ruined. The finishing room was partly burned away; the expensive electric oven was a mass of wires and warped metal; the ceilings and glass skylights were blackened and broken.

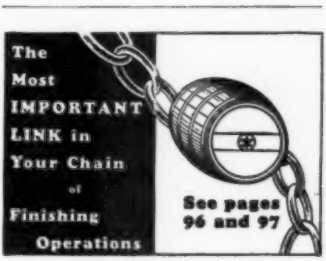
In fighting this fire several lives were endangered and some might have been lost when the volunteer firemen turned water from a hose in a solid stream into the oven and over the electric heating elements. Fortunately the foreman had pulled the switch and the "juice" was off, so no one was shocked or hurt.

Both fires were probably caused by careless "housekeeping"—in one case by permitting the accumulation of paint on the wood dollies used to carry work through the baking oven.

In these cases the maintenance man's recommendation of metal racks, and a porthole cut in the oven door to allow the introduction of carbon dioxide gas from cylinders mounted on a portable truck, will probably be heeded. Their use will at least confine the damage of any future oven fire to the contents of the oven. —W. S.

"Lithosol," du Pont Product

The Dyestuffs Division of the du Pont Company has just placed on the market "Lithosol" Rubine 3G Powder, used chiefly as the calcium or strontium salt for the production of printing inks and lacquers. This color has good light fastness and is non-bleeding in oil and lacquer solvents, the company says. "Lithosol" is a registered trademark of E. I. du Pont de Nemours & Co., Inc.



New Furniture Finishes

Preview of Winter Exhibits at Los Angeles Furniture Mart

BY LILLIAN B. WINCHESTER
AND ORRIE D. MAAL

AN ERA of better woods and better finishes has arrived for the furniture manufacturers exhibiting their products at the Los Angeles Furniture Mart. A glimpse into the samples which will come to light with the opening of the Winter Market the week of January 25 proclaim this:

Fascinating new blond finishes, authentic shades of mahogany for traditional pieces, and more enduring finishes for Early California, nautical, and pioneer suites will be highlights of the January show.

Platinum grey — perhaps the most interesting of the "blonds" —will be restricted to Modern de-

A grouping of the new pioneer furniture to be shown at the Winter Market at the Los Angeles Furniture Mart the week of January 25. This is a knotty pine grouping in the new rawhide finish by Brown-Saltman, of Los Angeles, Calif.

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E-17

signs in bedroom and dining room. It consists of a platinum sealer or chemical covering applied to a very fine grade of birch or maple which is uniform in coloring. To this is added one or two coats of lacquer or one of white maple varnish; the effect is one of clear translucence. The new blond maple will have a similar treatment to the platinum one and will be evident in both Modern and Early American styles. Fruitwood and kindred finishes will be used for the new French Provincial suites of which there will be quite a smattering.

Maple finishes, whether in the bleached or natural colors, will be in evidence in a heavier body finish which means that more varnish will have been used. In fact two or three coats of varnish will be applied where formerly one was used.

Mahogany; Authentic Coloring

In the mahoganies a number of the red and darker finishes will enhance the beauty of 18th Century English and Duncan Phyfe styles. It is evident in these finishes that a real effort has been made to reproduce the more authentic colorings used in the different degrees of light and dark by the famous craftsmen of those years. For instance, Sheraton mahogany is just a little darker than the natural shade; Heppelwhite used a medium red mahogany; Adam Brothers a deeper brown; and Duncan Phyfe expressed his art in a deeper red mahogany. It is interesting to note too that Duncan Phyfe designs will be more in evidence in the new merchandise than during the past seven years . . . . which, according to authorities, proves the point that styles repeat themselves every seven years.

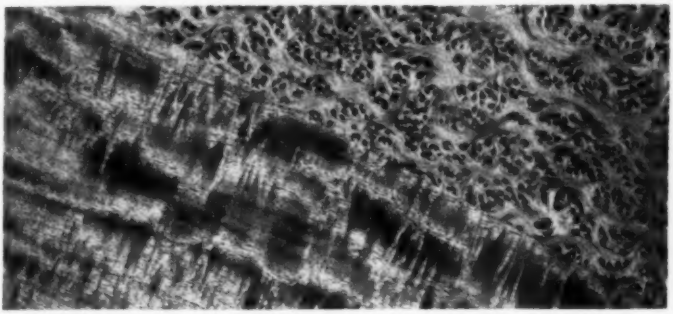
Pickled Pine; Nautical Suites

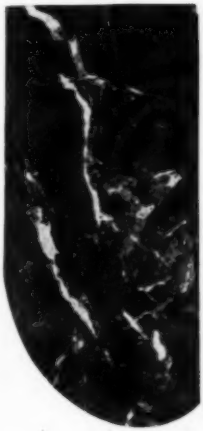
A new pickled pine, which may still be knotty pine to you, will be evident among new novelty nautical suites. The difference in knotty and pickled pine is that the latter has been treated and bleached in such a way as to be insured against the invasion of termites. Several manufacturers are producing the pickled pine in various colors, the most popular of which is "sand." The finish on this merchandise consists of a coat of primer (a coat of shellac) with a coat of stipling or glazing with oil colors . . . . with the result that this pine is a much superior grade to the pine merchandise shown during depression years.

One pine nautical suite has wheel-backed chairs, wheel mirrors, etc., which include a great deal of workmanship since these pieces are made of many small pieces fitted together. Another interesting knotty pine grouping is the pioneer suite which will be evident in styles for a boy's room or for adults. It is finished in a rawhide shade which is a mellow color similar to tanned leather. The design is quite distinctive, having the motifs of the oxen yoke, the old wagon wheel, the gun, etc., used in the covered wagon era.

Metal Furniture

New metal furniture is getting more play in this market than at any previous showing. This furniture runs in three types: painted furniture made of steel, chromium plated furniture, and stainless steel. The painted furniture





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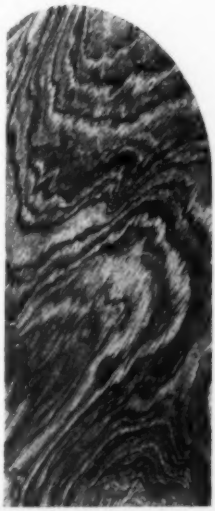

Our Art, Color and Design Department is ready at all times to assist you or your color design engineers in adapting this process to your production. We maintain an engineering staff, and complete service for installing the process.

OXVAR

Faithful Reproductions

for the coming season will be shown in more beautiful and vivid colors in very Modern styles, all of them sporting a high gloss finish.

Kitchen; Breakfast Suites

Kitchen furniture will be seen in tints. Major items such as stoves and refrigerators will be in ivory, gray or white, while the more vivid colors will be used as decoratives. Little enameled furniture will be seen.

Breakfast suites in oak and Philippine woods, are finished in two-toned effects obtained by painting the surface with ivory, white or gray-green and rubbing a two-toned color into the pores.

Radio cabinets will appear in walnut with a heavy bodied finish polished to a high gloss. The designs will run to Modern and many of the cabinets will be fashioned in fancy veneers, oriental walnuts, zebrawoods, and fiddleback mahogany or walnut.

Oak Furniture; Rattan

Oak furniture in Spanish, English periods and typical California styles will show new designs which will be merely glazed finishes or rottenstone finish.

Three-toned effects will be seen in the new line of baby buggies to be presented in one of the fiber lines. Popular colors of enamel (one coat) will be greys, light greens, and cafe or ivory shades.

In the imported rattan lines, which will be more in evidence this year than formerly, there will be one from the Philippine Islands. This is a bent rattan in both traditional and Modern designs. Some of this rattan has been made into modern suites for bedroom, living room, rumpus room and sunporch, and is finished in natural, black and mahogany finishes decorated with natural fibre and black fiber bindings.

Upholstered Furniture

In many of the upholstery designs in the French Provincial, Louis XIII, XIV, XV, and XVI, and in some of the Modern, there will not be much wood or finish in evidence. However, in the upholstered suites showing the more expensive woods, these will be in finer lines with thinner arms and more chaste outlines.

Lamps; Cedar Chests

Lamps to harmonize with the new blond trend are being finished in ivory and white. There will be bronze bases, and enameled bases in many colors, also. Silver and platinum finishes will also be in evidence. Many of the new finishes will be in the new Franciscan pottery in two-toned effects—white with a deep yellow or deep blue.

Cedar chests in waterfall fronts in such veneers as aspen, acacia, myrtle, all in Modern highly polished finishes will be paraded at this market. Rounded corners will also be in evidence, and the chests have been modernized to harmonize with the most modern in bedroom furnishings.

Some of the new Early California furniture fashioned in lighter more modern lines, utilizing less iron work, will be made of maple, replacing the pine. These new suites will be finished in dull, mellow shades such as tanbark, briar, buckskins, age poams, and the warmer shades.

Yes . . .
the chart
shows
definite
improvement,
thank
you!

As the nurse reads the chart of her patient, you read the chart of your sales. . . . And just as skillful guidance, coupled with the proper remedies, reflect improvement on the patient's chart . . . so will skillful guidance and the proper finishing materials reflect improvement on the sales chart of your product. Our creative studio offers the guidance . . . our plant, the materials . . . to swing sales curves upward.

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How to
TEST CLEAR FINISHES

by P. H. Faucett
Consulting Chemist
Los Angeles, Calif.

Here are explained several easy simple tests which can be made by a finish user who wants to find out for himself, whether or not a certain clear lacquer, varnish or synthetic material will meet his special requirements in every respect . . . and he can make these tests at any time, without using expensive laboratory apparatus.

THE AMERICAN business man is gradually learning that the recommendation of the actual working qualities of a product is the safest guide to buying, and this is one reason why the most progressive manufacturers in all lines test their raw materials *before* buying large quantities.

Since the initial cost of reliable testing-laboratory *services* is often prohibitive to small users of finishing materials, it is interesting to know that simple methods have been devised whereby each purchaser can determine the merits of various lacquers in his own shop with inexpensive apparatus and methods.

A clear finish should be tested for:

1) Ease of pouring.
2) Ease of thinning.
3) Amount of thinning.
4) Cost of thinner needed.
5) Speed of drying to "tacky point."
6) Speed of drying to "dust free" point.
7) Speed of drying to "print free" stage.
8) Blush-proofness.
9) Freedom from arching in corners.
10) Flexibility.
11) Adhesiveness.
12) Gloss of film and its uniformity.
13) Smoothness.
14) Waterproofness.
15) Alcohol-proofness.
16) Scratch resistance.
17) Durability.
18) Resistance *against* yellowing with age.
19) Tendency to soak into wood or lacquer undercoat, and lose its effectiveness.
20) Tendency to soak into wood and cause grain-raising.
21) Time to dry to sandability point.
22) Freedom from mars when indented.
23) Tendency to turn white under wax polishes, etc.
24) Number of applications necessary to produce a presentable finish.
25) Brushability.
26) Ease of handling in spray gun.
27) Loss by evaporation in handling.
28) Suitability as a sealer.
29) Resistance to change of properties in storage.
30) Moisture-proofness.
31) Ease of removal from equipment.
32) Coverage or mileage.
33) Cost per article coated.
34) Tendency to cause bleeding of pigmented *undercoaters* or stains, colored varnishes, etc.
35) Ultra-violet protection of stains and dyes.

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2. Can be rubbed to a high glossy surface.

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36) Proof against alkalies and acids in cleaning compounds.
37) Salt waterproofness.
38) Type of failure.
39) Protection of metal against corrosion.
40) Effect of great temperature changes when on metal.
41) Relative amount of skinning in pots of spray outfit.

This may seem like a formidable array of properties, but the facts may be easily determined by a few simple tests. Since the number of things which may be lacking in a finish are so numerous, one readily appreciates the value of inexpensive laboratory tests on the large number of lacquers and varnishes which are at hand to choose from. How much better it is to discover the poorer products on a small laboratory scale and thus eliminate the expense of factory runs!

Much can be learned by:

1) A percent-by-volume test.
2) A viscosity test.
3) Pouring tests on tin.
4) Pouring tests on wood.
5) A brushing test.
6) A spraying test.
7) A storage test.

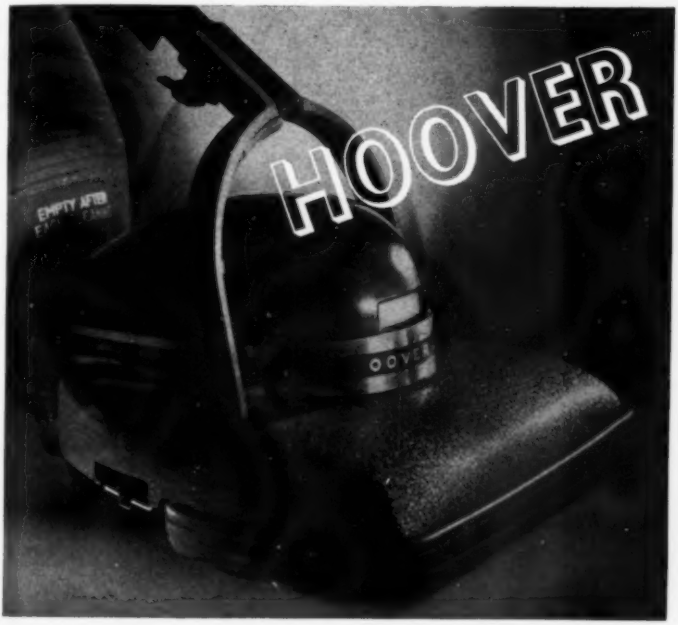
Most of the 41 points will be dealt with in the seven tests.

Test 1—The percent-by-volume test is important because the actual amount of film-forming material is proportional to the volume of non-volatile material, and varies more with clear finishes than with sanding sealers. In fact, on an impervious surface, an oil finish of the same percent by weight of non-volatile material as a nitrocellulose solution, will give 1.6 times as much bulk of actual film material. To make this test one selects a tiny graduated glass cylinder or tube of about ¼ to ⅜-in. inside diameter, which has markings that enable one to read to at least 1/10-c.c. (cubic centimeters) and to estimate one-fourth of this. A chemist's burette will do.

Take a narrow sheet of tinfoil, wrap it around a slender rod (say ⅛-in. in diameter) to form a long slender tube open at both ends and small enough to be dipped into the burette without touching the sides. Use some suitable lacquer-resistant adhesive to glue or cement the edges of the tinfoil tube. To hold the tube while it is being dipped into the burette, fasten a fine wire to one end of it.

Now pour a small quantity of the lacquer to be tested into the measuring tube or burette—say up to the 2.5-c.c. mark. Then, as the tinfoil tube is immersed in the liquid and withdrawn, a certain quantity of lacquer clings to it—let us say .5-c.c. after the last free drop has fallen.

We also note that when the tinfoil tube was immersed in the glass tube of lacquer, the level of the lacquer went up say .1-c.c. Now, after the tinfoil has been withdrawn and the lacquer that clung to it (as a coating) has become dry on its surface, we note the reading on the glass tube and dip the coated tinfoil into the glass tube of lacquer again, being careful to dip it down exactly the same distance as before. Note how much the level rises. It will rise more than .1-c.c. because this time the tinfoil tube is slightly increased in thickness by its dry lacquer coating. Suppose the liquid rises .2-c.c. We know that .1-c.c. is due to the tinfoil and .1-c.c. to the dried lacquer film which came from the .5-c.c. of liquid. Therefore the percentage of non-volatile material, by volume, in the liquid is .1 divided by .5 or 20%. If one dipping



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For the Magnesium metal housing of the new Hoover cleaner S-W Kem Art Metal Finish in a "stratosphere gray" was selected because its fine even texture enhanced appearance, it is scratch and mar-resisting, and practicable in application. Whatever your product, let the S-W Finishing Engineers and Industrial Color Service be your source of aid. No cost or obligation. Write The Sherwin-Williams Co., Cleveland, Ohio

SHERWIN-WILLIAMS INDUSTRIAL FINISHES

does not give enough film to raise the level of the liquid appreciably, several immersions will be necessary.

Care should be exercised to see that no bubbles form on the tinfoil, as this would cause a false reading. Also, when testing varnishes or products that skin quickly, one should clean the graduate and use distillate or water for the final reading. If the liquid is too viscous it may be thinned a certain amount and the test made and calculated with allowance for the thinner as follows: Cubic centimeters of thinned lacquer divided by c.c. of unthinned lacquer, times percent of non-volatile material obtained in the test, equals the actual percent of non-volatile material in the original sample.

Test 2) A practical way to test the lacquer for viscosity is to compare it with the viscosity of various known mixtures of glycerine and water (or other test liquids) in the following manner: You will need a number of accurately bored test tubes, each with a tight fitting cork as shown in Fig. 1. Mount these on a baseboard so the whole assembly can

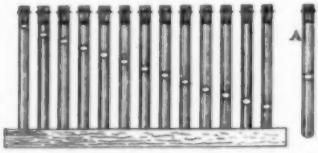

Fig. 1—The corked test tubes, mounted securely in a base board, contain varied mixtures of distilled water and glycerine, with an air bubble left in each tube. The range of viscosities of contents can be judged by the different rates at which the bubbles rise in the tubes. These become "known values" with which to compare a tube "A" containing lacquer or some other clear finishing material (and air bubble) which is to be tested for viscosity.

be quickly turned into inverted position. Put some of the lacquer to be tested in tube A, and in the other tubes place different mixtures of glycerine and water, and mark each tube for identification. Fill each tube so that only an air bubble remains. The air bubble should be the same in all tubes. Now, with all of the tubes in perpendicular position and all air

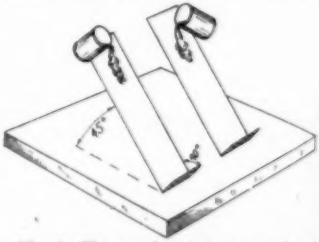

Fig. 2—The pouring test on panels of smooth tin supported at an angle of 45°.

bubbles at the top, quickly invert all tubes and compare the speed at which the air bubbles rise from bottom to top. This speed is directly proportional to the viscosity of the contents.

Test 3) Small pieces of glassy-smooth tin, of about the gauge used in 5-gallon square cans, should cut into strips about 2-in. wide by 6-in. long. The panels are bent at 90° about ¼-in. from one end, see Fig. 2.

The lacquers or varnishes being tested or compared are all thinned to a good spraying viscosity which will be equal to that of a tube in the viscosity set, as previously determined. The ease of pouring (1) and thinning (2) are observed, and the amount of thinner necessary (3) to get a certain spraying viscosity. The costs of the thinners (4) are noted. Then the thinned mate-

(Continued on page 66)

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Major Review of New

DEVELOPED IN 1936 FOR INDUSTRIAL USES . .

EVERY ONE of the new finishing materials included in this Review represents an important and interesting development especially designed to meet certain utility or decorative requirements. Each material is adaptable to certain modern factory production schedules and conditions. Somewhere it will fit in advantageously to produce a surface coating or treatment that will withstand some kind of severe service, or it will help produce a strikingly attractive surface for decorative purposes, or it will permit a more rapid production schedule, or be the means of effecting substantial economies in the manufacturing process.

In number of items, wood furniture finishes top the list, which will be welcome news to the revived furniture industry. Furniture manufacturers as a whole are committed to the policy of putting on better finishes, and in this Review they will find several materials worth investigating.

The popularity of blond finishes for furniture, fixtures, showcases, and novelties has encouraged several new developments and improvements in bleaching compounds, treatments and coatings designed to produce permanently attractive light colored finishes at reasonable cost.

A remarkably large list of what we term "special decorative" finishes for wood, metal and other surfaces is included in this Review. The items under this classification are especially interesting; they offer a variety of surface decoration effects in texture, pattern, color and sheen, with which to dress up the new and the modernized old products.

Finishing Materials . . .

. . ON WOOD, METAL, PAPER, RUBBER, LEATHER

Some highlights of what follows in other classifications are: Finishes for metal surfaces subject to high temperatures (up to 1,000°F.) and for thin metal subjected to deep draw or forming operations, silk-screen process paints, Venetian blind enamels, electric cable lacquers, flexible coatings for rubber that will stand stretching up to 30% or 40%, coatings for polished metal subject to outside exposure, finishes to protect iron and steel from rusting, finishes that produce hammer-brass effects, bronze powder finishes that produce polished plated-metal effects, clear protective coatings for paper, leather and wood grain reproductions on metal.

Manufacturers of these finishing materials are united in emphasizing the fact that each and every material listed is a practical tried-and-tested product ready for use in average industrial establishments operating under average normal conditions. Every material is thoroughly dependable and is offered and backed by a thoroughly reliable firm. None of the materials listed is what you might term "just a laboratory experiment" or a "trick material."

Furniture Finishes

In this classification are stains, combination stain-fillers, combination stain-sealers, sanding sealers, primers, undercoats and top coats in varnish, lacquer and synthetic materials; also equalizers for uniforming the color of various woods, lacquers that present a dull or semi-dull sheen, and others that are intended to be rubbed and polished. Materials are available to meet practically any set of conditions or requirements for rapid production, attractive appearance and durability or resistance to the wear and tear of regular or unusual service.

Absolute Equalizer—Does precisely what the name implies. Dark streaks, spots and discolorations in the wood are all equalized and made uniform on the lightest shades. A clear, transparent, fast-to-light finish is

obtained on maple or maple finish on gum. Contains no dangerous caustic or bleach; is not a paint or enamel; will not cloud or destroy the grain or texture of wood; requires no particular skill in application; can be mastered in a few minutes by the average spray man. "Naturally, if we can equalize light maple finishes, we can also equalize darker shades such as walnut, etc."—Identify by No. 100.

Water-Stainfill — A combination radically different . . . . a definite blending of water stains with pigments to produce a regular oil filler with positive water staining properties. It wipes freely for ten to 15 minutes and dries for coating within two hours, showing exceptional quality, speed and economy.—101

Candoc "Q. C. P. W." Stain—Coats in one hour. Any shade of oak, walnut, maple and brown mahogany. Permanent non-bleeding colors; pigments stay in suspension; little or no stirring; strong colors; will take considerable reduction with naphtha; fills as it stains; excellent penetrating and uniforming qualities; rich, transparent, deep tones; excellent adhesion of succeeding coats; nontoxic; no benzol; spray, dip or brush. Wipe in five to ten minutes. Care in wiping produces a beautiful 2-tone and glaze effect. May be coated with sealer or shellac in one hour.—102

Permanent Pigment Oil Stain—As fast to light as water aniline stains, yet absolutely will not raise grain. Eliminates wash coat of shellac, as filler is applied directly over stain. —103

"Absolute" Seal Stain—Provides a stain and sealing coat in one operation. Colors are fast to light, acid anilines being especially selected to give a permanent fade-proof color. Can be dipped, sprayed or brushed and will show remarkable uniformity and transparency. Will dry hard and give easy sanding. Is reduced with water.—104

****The new materials are conveniently grouped under these classifications:**

Furniture finishes.....Start on page 35
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Special decorative finishes.....41
Certain metal finishes.....45
Air-drying enamels.....52
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Heat-resistant finishes.....56
Rust-resistant coatings.....58
Paper, rubber and leather.....60
Bronze powder finishes.....61
Miscellaneous.....61

Please note the identification number following each listed product. When writing to "Industrial Finishing" for the name of the manufacturer or when sending a letter to be forwarded, be sure to mention this identification number.

Unitol Wiping Stain—A uniforming stain for industrial use. Fast to light; non-grain-raising; reduce with naphtha; can be dipped, sprayed or brushed; will not strike in or darken the more absorbent parts of the surface, therefore it produces real uniformity. After wiping off it gives a unifying transparent tone to the entire surface, greatly enhancing the beauty of the finish. When used in a spray gun, can be applied as a combination filler and stain if desired.—105

B. B. Primer — Belongs to the newer type of primers, differing from the older type in that it dries more rapidly, sands easily, seals the wood, and gives a smooth surface for recoating . . . . A real flint primer composed of a rapid-drying vehicle and a fine silica base; fills the little air spaces left in the pores after the work has been filled with a paste filler. Can be brushed or sprayed. —106

Sealtone—A combination of water stain with special lacquer sealer. Enables the finisher to uniform

woods without concealing the grain. The colors used are light-fast and non-bleeding. A single application duplicates a water stained and sealed effect, both in color and in body.—107

Bodying Sanding Sealer——A new principle is embodied in the formulation of this sealer that employs properties of laying the grain of wood. This enables easier and quicker sanding; also it gives exceptional body at low cost; is equally good as a building coat; is producing excellent results under varnish as well as lacquer.—108

Impenetro Sealer—A clear air-dry sealer which serves the dual purpose of sealing both bleeding colors, such as mahogany, and also as a sealer under varnish and similar surfaces which would crinkle and raise if lacquer were applied over the surface without an intervening coat of Impenetro sealer.—109

600-S O'Shelac—A perfect foundation material for varnish or lacquer; also, when two or more coats are applied it produces a final finish that is exceedingly durable, waterproof and alcohol-proof. Will not bloom even under most unfavorable conditions. Sands freely; dries rapidly; rubs easily.—110

Perfecto Sealer—For use under flat varnishes; dries and sands quickly; extremely tough and elastic and holds out the succeeding coat of varnish remarkably well.—111

Cold-Check-Proof Wood Lacquer System—Consists of a sealer and a top coat lacquer. The sealer can be sanded after one hour air dry, and the two coats of lacquer can be rubbed and polished with exceptional ease next day. The completed system will stand an unusual amount of abuse, particularly in relation to rapid changes of temperature, and still be print-proof. Resultant finish is unusually clear and has minimum sinking properties.—112

"Thicote" Heavy-Bodied Lacquer—Manufactured in gloss, flat and semi-gloss sheens; has the unusual property of "laying up" with exceptional body, with economy in cost and operation.—113

High-Solids Furniture Lacquers—In both clear and flat that spray full body and naturally produce a full finish on the work.—114

Mar-Proof Wood Lacquer—Has maximum resistance to normal wear, particularly in furniture that is used in close quarters such as interiors of cabins, trailers, etc.—115

Buffing Wood Lacquer—At the present time there is a strong tendency with the radio cabinet manufacturers to produce a full, clear finish. This is obtained by applying one coat of lacquer sealer which is sanded and followed with two coats of buffing lacquer. After the last coat has dried for 16 hours the cabinets are rubbed and buffed to a high polish.—116

Tough Coat Lacquer Formula No. 125—For "custom finish excellence." Formulated particularly to meet the exacting requirements necessary for the production of that mellow old French polish effect, without which custom finishes cannot be accomplished. Offers durability and economy.

According to the manufacturer, "With Tough Coat this Old World French polish effect can be faithfully produced with greater durability and more economy than by the slow European hand pad-process."—117

Absolute Qwik-Dry Foundation Finish—Fills and stains in one operation; cleans up easily and with remarkable evenness as compared to ordinary wood fillers; will not raise the grain; dries to re-coat in one hour under normal factory conditions; requires no force drying; filler will not lift, turn gray or shrink in pores. Acid aniline colors assure clearness of shade, permanency and

non-fading. According to the manufacturer, it saves one stain operation, one light sanding and two handlings. Available in standard and special shades to match various wood finishes.—248

Semi-Dull Flat Varnish—Carries the same amount of solids as does the regular rubbing varnish; dries tough and hard overnight and to a semi-dull sheen which does not mar or scratch readily. Doesn't need rubbing but will stand rubbing or an oiling off if desired. Gives a clear, transparent film; repels water; does not skin over; will not jell or thicken on long standing. Can be sprayed from the drum if necessary.

A semi-bright flat varnish, similar to above, is also available.—118

DeLuxe Rapid Dry Rubbing and Polishing Varnish — Has exceptional body; dries extremely tough over lacquer sealers, primers and shellac; can be sprayed or brushed, and in most cases one coat is all that is required. Final film is elastic, extremely durable and will not readily bruise or chip; is pale in color; is gas proof; will resist water and can be rubbed with either oil or water to a dull or polished finish without tearing out; can be applied one day and sanded and re-coated the following day, and rubbed in from overnight to 48 hours.—119

Georgian Mahogany Finish—A new blending of warm tones with just sufficient soft brown shades to develop all the richness and character of mahogany. Georgian is a pleasing mellow color of distinction.—121

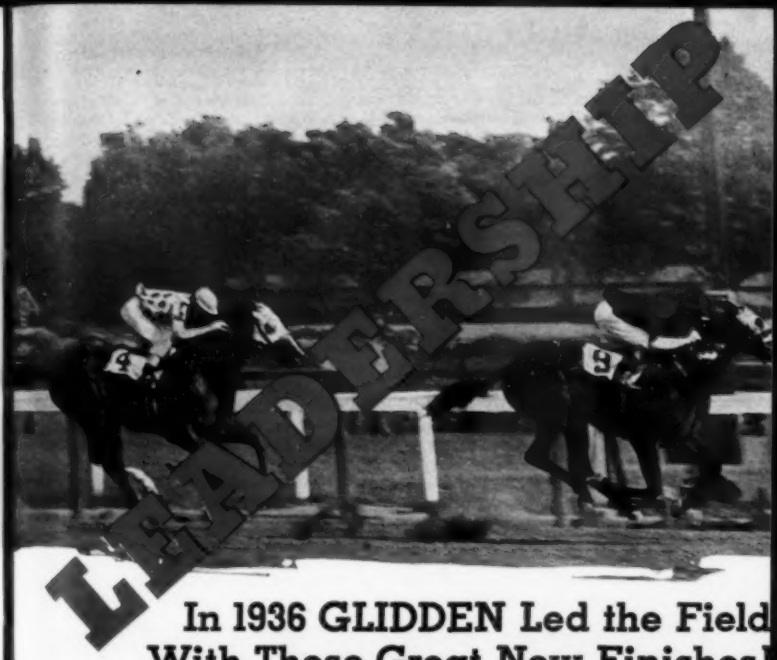
Ultra-Speed Clear Gloss and Flat Synthetic—For spray application to wood over a sealer or shellac where either lacquer or varnish is now used. Also used as a bronzing vehicle. "Builds like a varnish; dries like a lacquer." Dries dust free in 8 to 10 minutes; to handle in 15 minutes; rubs nicely in three hours and can be shipped in five hours. By virtue of its high solids (40%), one coat is equal to two coats of lacquer and it has 40% to 90% more mileage than lacquer. This material gets tougher with age instead of more brittle. Excellent for wood turnings such as chair rungs and table legs; is alcohol-proof.—120

Patina Walnut Finish — A brand new strikingly different finish and color. A reproduction from Antique Italian. For use on walnut, birch, gum, pecan or maple. Produced with a combination of D-1207 Sealtone and Patina Glaze D-1193.—122

Pilgrim Maple Finish — A soft brown and yet warm shade especially adaptable to Early American pieces of the "worn-edge" and semi-antique types. Has that "different" tint which makes it both unusual and attractive—123

18th Century Finishes—May be easily achieved by the use of L-Mac-E materials especially formulated for this purpose. These products include 18th century Mahogany stain powder; 18th Century mahogany filler; mahogany shading stain, water stain solution. The stain powder is reduced and applied by spray as a medium wet coat; when dry the surface is given a shellac wash coat. It is then sanded and filled, again shellaced, then shaded. Finish with sealer and lacquer.—124

Rubber Gloss Furniture Polish—A smooth, fine-particle colloidal emulsion; has a slight pink color cast and it is odorless. A carefully selected and blended combination of materials; a wax polish. Lays a wax film on the surface which is hard to the point that it repels dirt and dust and eliminates the necessity of frequent re-applications. A light dusting with a soft cloth continues to maintain a beautiful luster and the protecting film of wax stays "put." Does just as fine a job on finished metal work as it does on the finest wood surface. No tendency toward streaking; practically foolproof. Does a good cleaning job.



In 1936 GLIDDEN Led the Field With These Great New Finishes!

Immense laboratory, plant and material resources at the command of Glidden again resulted in outstanding finish developments in 1936! During the past year, the following laboratory-tested, service-tested, time-tested finishes were announced by Glidden:

SUEDE: Close-grained, soft texture, dull luster. A dense, one-coat material for baking on metal. Variety of colors.

HAMMERLOID: Looks like hammered metal. For wood, metal, paper, etc., air dry and bake dry operations. 22 colors.

BLEACH-WHITE: Makes possible the bleaching of walnut, mahogany, gum and other hard-to-bleach woods, with only *one* application.

METALESCENT SPEDENES: Quick-drying, air-drying lacquers, giving beautiful metalescent effects. Good adhesion to bare metal.

TORRID-COTE: A non-discoloring cable lacquer for use over high tension ignition cable. Withstands extremely high heat.

WIRE ENAMELS: Varnish coatings for both fine and heavy wire used in the electrical industry.

SNYTHELACQ: For motor cars. Requires fewer coats and less polishing. Wheel polishing only is necessary.

READY-TO-SPRAY HI-SOLIDS FURNITURE LACQUERS

Write for complete information on any of these remarkable new Glidden products.

Factories in:
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but will not harm the finest or the most delicate finishes; contains no acids, strong solvents or alkalis.—125

Blond and Bleached Finishes

For use in connection with wood finishing, especially in furniture, fixtures, showcases, novelties, etc. These materials, or the treatments specified, are formulated to permanently remove the dark colors from wood, leaving the natural wood grain showing so it can be finished with clear materials to produce that uniformly light blond tint which is now so popular.

Bleach-White — Can be used to bleach practically any type of wood from its original color to an almost natural white and without any deposit of a salt of any kind in the pores of the wood. Two solutions are mixed together and applied as one solution; treated surface should stand overnight before recoating, but it has been successfully recoated in three hours' time. Any type of finishing material can be applied over Bleach-White.—136

Super Bleaching Solutions — For bleaching woods to be finished. Manufacturer states that "because different woods respond differently to all bleaching preparations, our laboratory has developed special processing methods of handling our Super Bleaching Solutions so that those cabinet woods commonly considered impossible to bleach, may now be bleached successfully."—137

L-Mac-E Wood Bleach — The L-Mac-E No. 1 and No. 2 bleaches really bleach the natural color from wood. They not only bleach the red cast from mahogany but also remove a large portion of the natural dark

The natural blond beauty of prima vera lends itself to this modern suite which is typical of the new furniture for 1937 that will make its debut at the winter market at the American Furniture Mart. The trim may be either chocolate brown, or turquoise blue. A product of the Tennessee Furniture Corp., Chattanooga, Tenn.

spots contained in the various lumbers. These bleaches do their bleaching without leaving a deposit on the wood, and cannot react with any finishing materials applied over them.—138

Du-Bar Bleach—A powerful and fast-working bleach. It is permanent; colors will not return. Mahoganies and other woods can be bleached to an absolute white, or the degree of bleaching can be controlled as desired.—139

Gilco 2-in-1 Odorless Wood Bleach—Makes effective bleaching possible in one application; easy to apply by soft cloth, cotton waste, brush—or by spray providing a glass cup is used and the gun cleaned immediately afterwards. Is intended for use on walnut, mahogany, maple, birch and gum; may also be used to bleach pine for production of the pickle pine finishes.—140

Blond and Pickled Finishes—The first step in the production of these light colored finishes is to be sure that the wood is properly bleached. After bleaching, distinctive grains must be preserved and brought out so the finish will be built up with the proper colors of filler, glaze coats and followed with water white sealers, water white clear lacquers and water white flat lacquers. These lacquer finishing materials must be of the quality that will have the proper durability and not discolor or yellow.—141

Blond Maple Finish—A new finish that brings out the full beauty of maple. Easily applied without exacting judgment or manipulation. Simply apply one spray coat of L-Mac-E blond maple coating No. L-266. Allow two hours for drying; lightly sand with fine sandpaper. Next apply two or three coats of L-Mac-E water white lacquer. Rub and wax with blond maple wax.—142

Blanchit (for "blonding" woods)—The modified No. 1 solution is adaptable for spraying; passes readily through spray nozzles, and does not require wiping from the surface before applying No. 2 solution; has no objectionable fumes or injurious gases. Neither solution is poisonous.—143

Special Decorative Finishes

Here is a group of finishes that give various colors, sheens, textures and patterns, affording an almost unlimited choice for suitable decorative effects on practically any type, size or shape of article manufactured. Some of these are flashy and bizarre; others have a subdued tone of quiet refinement; still others are somewhere between these two extremes in point of attractiveness and originality.

Multiform Finish—Multiform finishing is a method whereby porcelain, granite, marbleizing, mother-of-pearl and spatter effects can be approximated at low cost without special equipment. In addition, unlimited forms, patterns, designs, and color combinations can be originated to suit the tastes of any individual manufacturer. The name "Multiform" is used because it more correctly describes the many distinctive effects the manufacturer can secure to "tailor fit" his particular product. The striking results from Multiforming are obtained by spray application. Special guns are not needed and all materials are applied without lapse of time between coats. Extra handling is eliminated because the article is completely finished with one entry into the booth.

The operations include a ground coat of desired color, a pattern coat applied at once, and a clear coat if desirable. The latter is optional. Air-drying or baking products may be used. All coats immediately follow one another, although time between operations will not affect the pattern. The clear coat is optional

but provides greater depth of finish. The clear coat is so constructed it may be rubbed dull or rubbed and polished after 12 to 18 hours drying. The rubbing operation is optional. —144

"Platelustre"—A semi-transparent new type of enamel which, when mixed with clear lacquers, gives a clear brilliant transparent colored effect that is said to be fast to light and very durable. Platelustre is supplied in a large assortment of colors, permitting the reproduction of all popular chemical metal coloring effects, as well as making possible new effects, without the use of chemical processes. Metals of all kinds can be finished with Platelustre. It is especially suitable for compacts, lighting fixtures, novelties, etc.—145

Air-Drying Metalescent Spedenes—A line of air-drying enamels that produce an exceptionally attractive finish—the metalescent effect; cover solidly in one application; have good adhesion to bare metal; air-dry dust free in 10 to 15 minutes, hard in two to three hours. Reduce 4 to 1 with No. 6 Metalescent Spedene reducer for spraying purposes.—146

Opalescent Baking Enamels—One-coat enamels that produce lustrous and distinctive opalescent or pearl-like finishes. Supplied in a wide range of colors which have great eye appeal. Applied by spraying; bake out hard and tough in one to two hours at 200°F., with excellent adhesion to most metal surfaces. An ideal finish for die-castings and metal articles of all kinds. Can be supplied in an eggshell or flat effect. —147

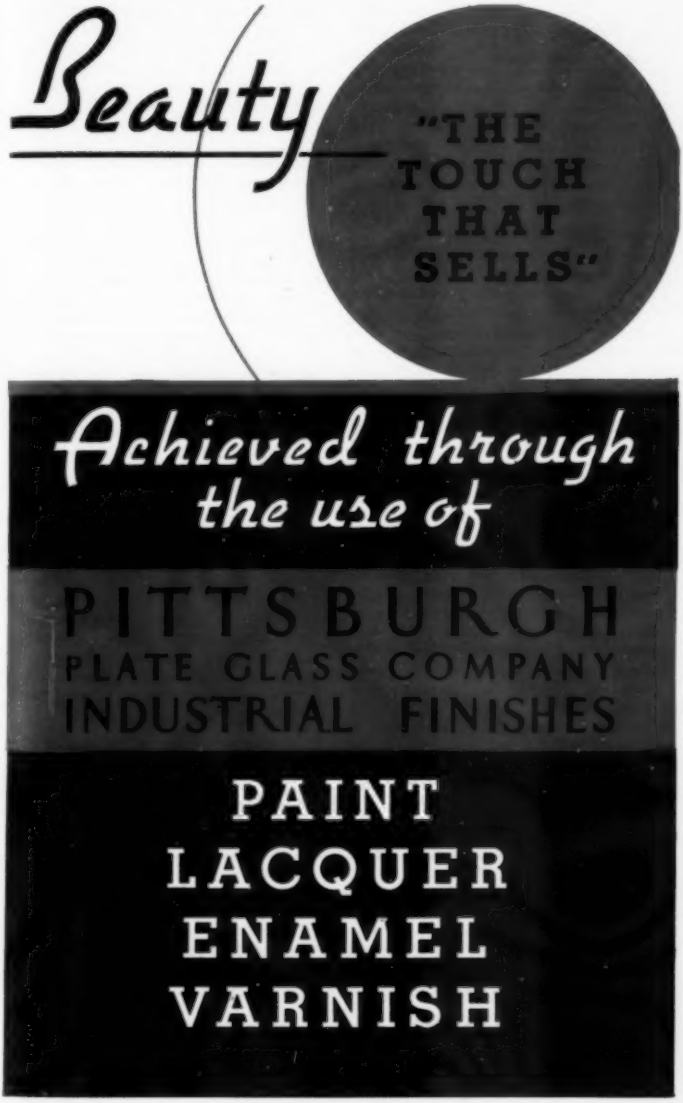
Crystallizing Lacquer—A one-coat finish for metal surfaces, available in a variety of colors as well as clear. A modernistic crystalline pattern of pleasing design results when this lacquer is used. This modernistic crystalline pattern harmonizes nicely with the newest styles of interior decoration and is particularly suitable where a striking unusual effect is desired.—148

Modern Crystal Lacquer—An unusually attractive finish for metal, glass, wood, fiber, paper, composition, metal foil. Is sprayed on . . . . and strikingly beautiful effects are secured. All sorts of fantastic crystal-like forms are produced in kaleidoscopic patterns, no two forms being exactly alike. May be had in crystal clear or in colors.—149

Hammered Metal Effect Finish—A material which is applied by spray and which produces a very unique effect, resembling old hammered metal. Suitable for use on both wood and metal and may be air dried or baked. All that is required is a double spray coat; easy to apply; relatively inexpensive.—150

Hammerloid—Looks like hammered metal; a beautiful new finish that can be used on wood, metal, paper, composition board or molded plastics; for interior use only; has excellent adhesion; will air-dry dust free in two to three hours, hard overnight, with a full gloss luster. It can be baked (first allowing the finish to set about an hour) in 45 minutes at 225°F. to a nice semi-gloss luster. Only one material is needed for both purposes.

Hammerloid is shipped in compartment cans, the proper amount of bronze powder included for the total gallonage of the container. Only enough should be mixed as will be used in one day. Hammerloid finish is produced in two spray applications. After proper mixing of the bronze powder and the pigmented liquids (no thinning is required) the article is sprayed with an ordinary gun at normal pressure, say 50 to 60-lbs. at the gun. Cup gun, gravity-feed or pressure tank may be used. The hammered effect is immediately sprayed on, using the same material but applying it with a special low-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"THE TOUCH THAT SELLS"
Achieved through the use of
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pressure cup and spray gun. This equipment sprays the Hammerloid in globules that embed themselves in the first coat and produce the hammered metal appearance. The pressure used is shown on a gauge on the cup and should not be over 20-lbs. for best results. The gun should be held approximately 18 to 24-in. from the work when spraying the "hammer."—151

Gold Dye Dip—For producing an artificial gold finish on polished metal surfaces. Apply a coat of clear lacquer. Dry two hours and dip the lacquered metal parts into Gold Dye Dip for about one minute; remove the excess dye by washing in cold running water. A similar finish can be obtained in other colors by using the same combination with clear lacquer and dye dip in other colors. —152.

Polyteck—A compound for producing rough or smooth plastic coatings on various surfaces. Can be applied as a richly colored plastic coating, worked out in various designs, and then further decorated with metallic coatings on the high spots of the "smoothly rough" texture and rubbed to a bright luster. The material comes in powder form and is mixed with warm water to putty consistency and is applied with coarse brushes, knives or trowels. Polyteck dries in 10 to 20 hours; is fireproof, wipe-proof, wash proof and resistant to weak acid or alkali solutions. It becomes hard but not brittle. Can be metalized in three different processes through a cold mechanical method. You can get silver-surfaces as well as copper, brass, bronze or steel, either whole surfaces, or only cupolas, like in relief work. The metal surface can be done in a dull, medium or high-gloss luster.

All colored, polished and metalized designs can be applied in combinations, either next to each other, or mixed with one another.—153

"Aluminum Hi-Glo"—An unusually high-gloss almuminum coating possessing decided surface smoothness; gives the effect of polished aluminum without the polishing operations; has extreme brilliancy and is produced either in lacquer vehicles for fast-drying or synthetic varnish liquids for maximum toughness and wear. Doesn't need to be coated with varnish or high-gloss lacquer to secure full gloss.—154

"Veltex-Metallic" — Uniform wrinkle enamels in complete combination with bronzes, uniting to produce soft appealing effects not attainable with the usual wrinkle enamels in single colors.

The texture is variable from small uniforms to unusual roughness, depending upon application. A medium to high gloss can be produced, and it can be supplied in a large variety of colors. Bakes in one coat application at usual temperatures.—155

Synthetic Wrinkle Baking Finish —Has all the advantages of synthetic finishes such as quick bake, extreme hardness, toughness and adhesion, as well as lack of discolora-

"Thanking you for the many services and good results from our advertising with you during 1936, we are . . . faithfully yours."—L. R. VAN ALLEN & COMPANY.

tion. When applied to steel, can be hammered repeatedly without loosening the finish. Produced in all colors and in both satin and gloss types of wrinkle.—156

Suede Wrinkle Finish—The effect is pleasing in that it is a fine wrinkle that really has the appearance of suede. Spray with one wet coat and bake 1½ hours at 275°F. There are many uses for this product.—157

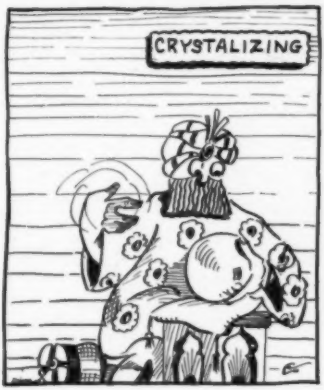
Black Melton—A new wrinkle type of finish, unusually attractive in texture and appearance; similar to the soft luxurious effect of the well-known English Melton fabrics for overcoatings; is produced in a variety of rich and appealing shades including black, plum, platinum gray, deep coral, sapphire, sand buff. Bakes to a hard adhesive film which, due to the fineness of texture, is pleasing to handle and easily kept clean and free of dust. Special highlighting effects may be secured through mist coating with suitable color combinations.—158

Plush Rayon Izarine—Available in all colors; used for producing a sprayed plush-like finish on practically all types of rigid surfaces, such as metal, wood, and even on more flexible surfaces, such as paper.—160

New Shrivel Bake Finish—A synthetic type product which gives a hard, tough finish that resists water, alcohol and grease; gives an attractive wave line, semi-lustrous finish to non-porous surfaces; hides surface imperfections in one coat.

The thinner the coating of shrivel, the finer the lines . . . . If the shrivel is placed in oven any time between one to 24 hours, the regular finish is obtained, but if placed in a heated oven immediately after applying, the lines are coarser and duller. Available in black and several colors.

An aluminum effect may be obtained by mixing either aluminum powder or paste with shrivel clear.



Aluminum and other bronze powder effects can be made by applying first the shrivel (usually clear or black) and baking it, and then a coat of bronze, lacquer or varnish. In like manner two-color combinations, shadings, etc., are possible with shrivel of one color and a top coat of lacquer or enamel or another color.—159

Certain Metal Finishes

In this list are some of the metal finishes not included in other classifications in this Review, for example, finishes that adhere to chromium plated surfaces and other polished metals, brass lacquers, ground coats and clear top coats for wood grain reproduction on sheet metal, finishes for metal containers that hold food products, flexible coatings made to withstand deep draw operations on thin metal, etc.

Ground Coat Material for Wood Grain—A new base coat or ground coat material for use under wood-grain reproductions . . . . used on metal parts that are to be fabricated from flat sheets. May be roller coat-

ed without silking, and without the use of size on sheets of different base metals. Requires a short force-dry or a low-temperature bake, after which the wood graining is applied. —161.

Clear Top Coating—A clear top-coat or protecting coat which may be applied by the roller coating machine, or for small parts by dipping or spraying . . . . for use over wood grain reproductions on metal sheets. After baking, the surface can be buffed in the sheet to a high lustrous wood effect finish with excellent depth, and then blanked and formed into the necessary shapes. Even where the metal has been considerably deformed, the degree of adhesion and toughness is so great that the surface cannot be marred.—162

Clear Corrosion-Resistant Finish—Complete resistance to pure alcohol and a number of equally powerful finish-destroying agents has been developed in a new clear finish for machine coating or spraying application.

When coated on nitrocellulose base coats, or alkyd synthetic, or oleo-resinous base coats, it tremendously improves the resistance of a finish to alcohol, alkali, acid and water. This new, clear, anti-corrosive top-coat bonds very well with the above-mentioned base coats, and may be blanked and formed.—163

Brass Lacquer—An entirely new type, possessing much greater outdoor durability than anything heretofore obtainable. Especially valuable for brass and white metal for marine exposure. Will not yellow in the weather and is adaptable to almost every kind of metal.—164

Chrome Plate Lacquer Series No. 7213—Produced in all colors for direct application to highly polished chrome-plated articles. This series has remarkable adhesion to chrome plate without the use of a primer, and is finding a rapid increase in application to this type of surface. —165

Clear Lacquer — For use on polished chromium plate; vehicle holds its color and luster and has good adhesion. Solids, 28%; reduce one part lacquer to one of reducer for spray or dip; comes under DuPont Lacquer License.—166

Zinc Chromate Primer—A synthetic material that has an unusual tenacity to aluminum and aluminum alloys; is applied in an extremely thin film over which either a synthetic surfacer or a finishing material can be used within four to six hours. It inhibits the corrosion of metals and serves as an excellent bond for succeeding coats; can be air dried or baked with equally good results.—167

Synthetic With Perspiration Resistance—A new type of synthetic with perspiration resistance; "sets-up" in the air almost as fast as lacquer; produces a beautiful high-luster flexible finish with excellent adhesion to practically all metals, including zinc die castings. For manufacturers operating automatic spray equipment, this new synthetic is admirably suited to speed-production, requiring only a force-dry of from three to five minutes.—168

All-Resistant Finishing Varnish—"After having been fabricated into caps, this will withstand in the closure, glacial acetic acid for more than 72 hours."—170

Air-Conditioner Finish — For air-conditioning units where constant cycles of cold, heat, humidity, brine, fumes of refrigerants, alkaline washes, etc., are in constant contact with the finishing materials . . . . a system that has produced films which are impermeable to the above-mentioned destructive corrosive influences. This successful system yields a practical result in the form of long-lived, fully flexible finishes

Synthetic Enamel

SUPER SYN-POR

FEATURING

REDS

AND

BLACKS

shorter baking periods...

15 minutes at temperatures 275 to 300°

An outstanding development in Synthetic Finishes. SUPER SYN-POR in reds, blacks and all solid colors that have a very high lustre, flow beautifully, and present a surface resistance that is marproof to the usual tests.

May be baked for as short a period as 15 minutes at temperatures ranging from 275 to 300°, affording a surface finish offering stronger resistance to shock and the elements.

Have excellent adhesion to various types of metal, and can be used on wood over primer of its own kind. . . . force-dried at very low temperatures, or air-dried where rapid drying is not essential.

If interested in improving your finish investigate this reasonably priced SUPER SYN-POR FINISH. If you are a user of REDS and BLACKS, here is your opportunity to cut down your baking time, obtain improved and stronger finished surfaces at no greater cost.

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DU PONT HIGH-BAKE

DULUX

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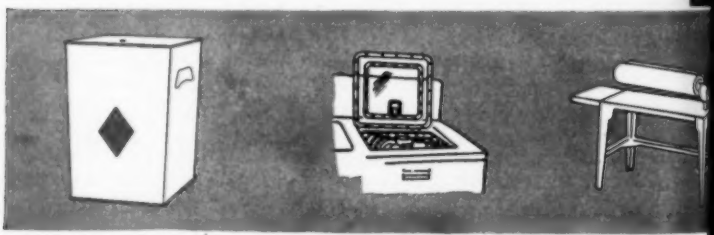
WHEN you send out your product in a gleaming DULUX finish, you give it an *extra* sales help.

DULUX has unusually high lustre. It adds extra beauty to an almost endless variety of metal articles.

DULUX is extraordinarily durable. Its smooth, tough, hard surface stands up. It is resistant to chipping, cracking and corrosion. It *keeps* its original sparkle and lustre far longer . . . doesn't turn dull or dingy with age.

DULUX is *proved*. Ever since its introduction, DULUX has been a sensational success on products such as cabinets, electrical appliances, refrigerators, radiator enclosures.

People *know* the extra value of a DULUX finish—through actual use, as well as reputation. And it will pay you to standardize your finishing with this outstanding finish. For full information write to E. I. du Pont de Nemours & Co., Inc., Finishes Division, Wilmington, Delaware. In Canada: Canadian Industries, Ltd., West Toronto 9, Canada. In Great Britain: Nobel Chemical Finishes, Ltd., Nobel House, Buckingham Gate, London, S.W.1, England.



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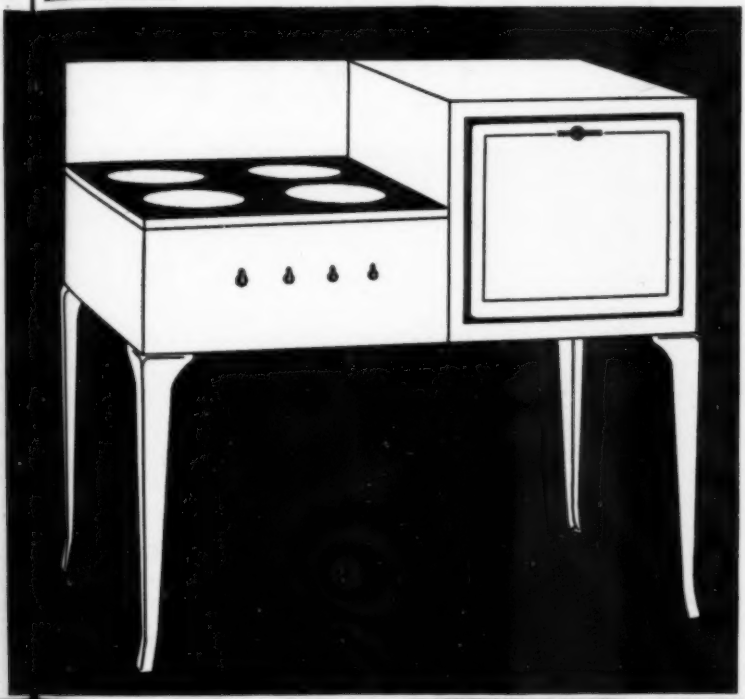

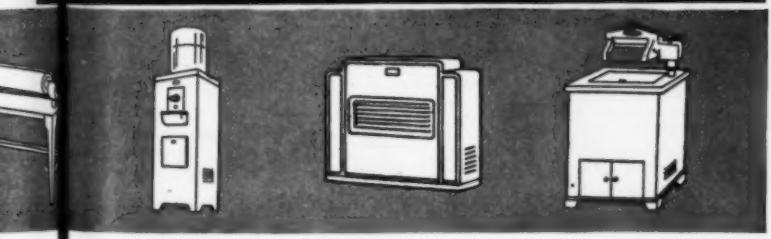

ED FINISHES

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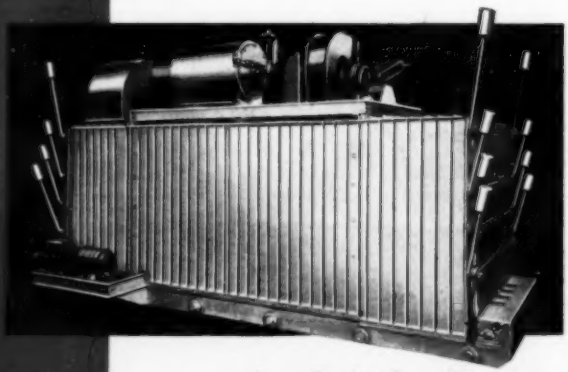
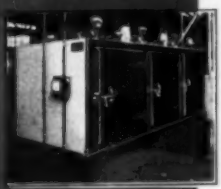
Industrial OVENS



Portable Direct Gas-Fired Annealing Oven designed and built by Mahon to meet specific requirements.



High Temperature Enamel Baking Oven designed and built by Mahon to meet the manufacturer's rigid specifications.

. . . for Baking, Drying, Tempering or Processing

No matter what your oven requirements are, the Mahon organization is better equipped to meet them efficiently and economically . . . because, for years Mahon engineers have specialized in the development of special production equipment of this type . . . their wealth of practical experience, and their thorough knowledge of modern production methods and requirements, places them in a position to render a valuable service to you in the solution of production problems involving ovens of any type for any purpose. Your inquiries are solicited.

MAHON

THE R. C. MAHON COMPANY
DETROIT—CHICAGO

Designers and manufacturers of Industrial Ovens of all types, Spray Booths, Rust Proofing Machines, Metal Parts Washers, Dust Collecting Systems and many other units of Special Production Equipment.

which are thoroughly adherent to all metal surfaces without priming coats.—169

Berchrome Sanitary Lacquer—A protective lining for caps and cans used for sealing and holding food products. Is particularly resistant to the effects of tomato juice and spaghetti and to acids such as citric, tartaric, malic, phosphoric, lactic, etc.; is more resistant to glacial acetic acid than most lacquers; is quite resistant to 85% acetic acid in the cold. Caps protected with this lacquer have been kept in boiling water for 30 minutes without whitening or permanently softening the film. Baking cycle: 375°F. for 30 minutes.—171

Roller Coating Material—A new non-silking drier-less roller-coating material which is always clean and free from nibs of oxidized of polymerized particles. Because of its peculiar structure, greater production can be attained through shortened baking time; does not skin in the container or in prosphoric; is available in all colors. Affords excellent adhesion on tin, aluminum, brass and other metals, without using a size coat. Its great flexibility makes a wide range of severe forming operations practicable.—172

Berco Deep Draw Sizing—For the protection of varnished and coated jobs; recommended especially for the smaller size screw caps, deep draw ketchup caps, or for any type of deep drawing where excessive strain is placed on metal or finishing materials. The heat from high speed dies sometimes causes trouble on unsized sheets. The smaller the die, the greater the pressure, causing undue stress on varnishes and coatings.

Due to its specially formulated base, this product has a great affinity for tinplate. It provides an even base for the varnish or coating. It "holds out" the coating. In fabricating metal, the sizing, being flexible, adapts itself to the distortion of the sheet in the fabricating press. Where ordinary varnishes or coatings would lose their grip on the tinplate under the heat of the dies this material is not affected due to its ability to withstand high heats. It forms a permanent bond between the tinplate and the varnish or coating, protecting both.—175

White Coating—Will not discolor even under the extreme conditions of the vulcanizing process as used in the rubber industry. This is a most severe test and opens up the possibility of finishing metal parts in the white that are subjected to these conditions. The coating may be applied by either spray, roller coating or tumbling. The part to be coated may be finished in either a flat or gloss.—173

Gold Litho Coating—Can be applied in one coat, by the sheet roller coating method, to metal; will withstand even the deepest draw to a dose cup. In this particular operation the dose cup was made in a single draw on an air-cushion press.

"We know this to be an unusual draw, and because of its outstanding fabricating ability, its unusual smoothness and depth of color, we mention it as an outstanding finish."—174

H. W. Cast-Iron Finishing System—The use of this system eliminates all hand work and overnight dry of sanding surfacers, yet produces an excellent finish on rough castings of all types. Consists of an undercoat and top coat, produced in all colors, giving a well-filled, smooth and lustrous coating. Its fast-drying characteristics permit a rapid finishing schedule to be maintained.—176

Enamel for Zinc—A new line of air-drying lacquer enamels, for finishing zinc and aluminum die castings. These new die-casting lacquer enamels produce an excellent, durable, elastic finish in one coat. They

are supplied in gloss and egg-shell sheens and in white, black and 32 standard shades. Special colors can be supplied when desired.—177

Air-Drying Enamels

Enamels in whites, blacks and various colors for numerous standard and special uses — for toys, automotive vehicles, furniture, household appliances, tool handles, signs, wire and other familiar products presenting various kinds of surfaces—are included in this list. Resistance to abrasion and resistance to solutions of acid, alcohol and alkali, quick drying, retention of color and gloss, are some of their characteristics. A few of them can be used as bake finishes if desired.

Synthelacq—A new type of motor car lacquer that requires less coats than are normally used, does not require the usual rubbing and polishing to bring the finish to a good smooth lustrous film. Wheel polishing only is necessary.—178

Larcoloid Air-Drying Enamel—Dries dust free in 30 minutes; hard in one hour. Resistant to acid, alkali, alcohol and salt spray. A durable lasting finish. Available in 37 colors.—179

Brevex Automotive Enamel—A rapid air-drying enamel for spraying on new or old surfaces. Gives a mirror-like finish that is durable and attractive. Available in several colors.—180

Crystalcote—Bus and truck enamels represent the latest improvements of modern glyptal type finishes for transportation equipment. These enamels are used by some of the large fleet operators, and meet all shop requirements as well as standing all service tests.—181

Glyprox — A combination glyptal-pyroxylin lacquer finish; a durable type of lacquer finish for exterior use such as on automobiles, trucks, buses, signs, etc.; is noted for its gloss retention, color retention and freedom from cracking, chalking, checking, and other types of finish failure.—182

Sta-Gloss White Synflex—A synthetic enamel that does not chalk after long exposure to weather; enables the finisher to produce an exterior finish that has just as much gloss after months of exposure as it had when first applied. There is no more a reason for dull, streaked jobs.—183

Hour-Coat — Non-poisonous color enamel developed to fill the need for a low-priced, economical material to give a lasting bright one-coat finish. Fade-proof; stain-proof; alkali and acid resistant.—184

Vita-Var Toy Enamel—Supplied in red, pastel and other shades; can be baked, force-dried or air-dried; has a high gloss and a tough elastic film which remains elastic indefinitely and will not peel off or chip under abuse; can be applied by dipping, spraying or tumbling and can be adapted to any baking schedule or other method of drying to fit production procedure.—185

Air-Dry Synthetic Enamel—Can be applied by either spray or brush, in the latter case no brush marks being left. Applied either way, this enamel sets up dust-free in 30 minutes and is dry to handle in four hours. The finish, when it obtains its maximum hardness, is comparable to a baked enamel. Has unusual waterproofness for a true alkyd-resin air-dry enamel; elasticity, durability on exposure, and ease of handling. Can be supplied in white and colors.—186

Silver Dip Baking Finish—An aluminum finish dipping enamel that

MULTIFORM FINISH

PROVIDES NEW AND UNUSUAL FINISHING EFFECTS FOR YOUR PRODUCT AT LOW COST!

• Step up the appearance of your products! Make them strikingly attractive with a simple application of Multiform Finish!

• This remarkable finish gives you an unlimited color range—makes possible countless two-tone pattern effects at no extra cost!

• No special equipment is needed. Simply apply Multiform Finish by ordinary spray methods—*in a single application!*

• Multiform Finish is made in both lacquers and synthetic enamels. The synthetic ground coat bakes in 35 minutes.

• Send for a copy of the new, free bulletin containing six specimen sheets and complete information about Multiform Finish. Address:

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stays bright indefinitely in the dipping tank, regardless of the size and whether it is horizontal or vertical; does not settle to the extent that very little agitation (by air or mechanical means) rapidly disperses the pigment. Does not skin; after baking, produces an extremely smooth, lustrous, silver-like finish which more closely resembles a plated finish. The finish is tough and will not chip or flake. This material may be used for bed springs or any article large or small where a finish of this character is desired.—187

Gasket-Dip Enamels and Metallic Finishes — Opaque lacquer enamels which produce excellent body and an exceptionally high gloss in one gasket-dip operation. These finishes have the appearance of the usual type of broom handle lacquers dipped and then followed with a clear topcoat.

Heavy metallic broom handle lacquer enamels which also produce an extremely attractive finish in one application. These materials produce a jewel-like, sparkling beautiful effect which is extremely salable—and economical. The material does not jell or deteriorate in the package; this is true even of silver and gold. —188

Industrial Enamel—Utilizing a newly developed method for processing oleo-resinous varnishes, a new type of industrial enamel has been developed which results in great economy for the user. The enamel is furnished at high viscosity and will take up to 80% reduction with V. M. & P. naphtha without any detrimental effect on the gloss. By using various degrees of reduction the material can be sprayed, dipped, brushed or roll coated. Overnight air-drying produces a smooth, tough film of high gloss, while a bake of one hour at 250°F. produces an even tougher film and the same high gloss. The finish is suitable for application on metal, wood and various composition surfaces. It is intended for interior use but is sufficiently durable for moderate exterior exposure. The same type material is available in semi-gloss enamel and also clear and semi-gloss varnish. —189.

Wire Enamels—A complete line of varnish coatings for both fine and heavy wire, as used in the electrical industry.—190

Concrete Floor Enamel—Is much more resistant to mechanical abrasion than the conventional paints supplied for this purpose.—191

Bake Finishes

Bake finishes are now used extensively on a considerable variety of metal products. New developments in this line include: 1) materials that become properly baked in a shorter length of time, 2) whites that will withstand high-temperature bakes without discoloration, 3) enamels that are so tough, elastic, and closely adhering to the metal that they will withstand severe forming operations without cracking, peeling or loosening, 4) finishes that resist extreme changes in temperature, and 5) others that are not damaged by contact with various greases or solutions of alcohol, acid or alkali. Other bake finishes are listed in the "Special Decorative" group.

High Bake White—A white that will take a temperature of 320°F. The increased temperature, of course, permits greater adhesion and absolutely more color retention.—192

High-Heat White Baking Synflex —Was developed to fill the need for a pure glycerol phthalic anhydride baking enamel that would require no priming coat. When baked according to directions, it not only has a

good adhesion as primers in general, but has superior adhesion. Has excellent covering power and superior resistance to heat, cold, acid, alkalis, butter fat, etc.—193

High-Heat White Coating — Does not discolor at temperatures as high as 280°F. for 60 minutes; a material that will stand repeated bakes for a period equivalent to two hours at 267°F. without showing the slightest sign of discoloration, and then fabricate without a fracture. Was developed for one metal decorator with a difficult baking cycle; works well under all conditions.—194

White Synthetic Enamel—Remarkable for its short baking cycle, hardness and flexibility. It will bake to a stone-hard, mar-proof, glossy white after one hour at 200°F. Naturally, this is a low bake for a synthetic white, if a hard dry is desired. The flexibility is such that when baked for testing purposes at 225°F. for four days, it can be bent over a ¼-in. rod without any sign of cracking on the bent edge.—195

Larcoloid Baking Enamel — Bakes at 150°F. for 15 minutes, "thereby not only cutting the cost of oven operations more than one-half, but also speeding up production in the factory due to the shorter length of time required in the oven. We do not refer to this as something that has been tried out in our laboratory under the most favorable conditions, but something that has been accomplished in production under normal conditions existing in the average plant." Produces a tough durable film.—196

Flexadur—A baking metal finish of great flexibility, adhesion, durability and toughness. Is used by large manufacturers of electrical appliances with satisfactory results.—197

Super Synthetic Enamel—Has certain desirable features heretofore not present in the alkyd or phenolic type of synthetics. Noteworthy improvements: Shorter baking periods; surface resistance; and generally stronger resistance to shock and the elements, especially so when subjected to repeated cleanings and exterior exposure. Even blacks and reds may be baked for as short a period as 15 minutes at temperatures ranging from 275° to 300°F. with a very high luster, beautiful flow, and with surface resistance that is marproof to the usual tests. This finish has excellent adhesion to the various types of metal and may be just as successfully used on wood over a primer of its own kind, and . . . . force-dried at very low temperatures, or even air-dried where rapid drying is not essential. Is manufactured in reds, blacks and all solid colors, including all tints.—198

Ultra-Var Enamels—A baking or air-dry enamel that dips beautifully without drips. Produces a full lustrous tough coating that is chipproof and positively does not go brittle with age. Sprays well and bakes in 30 to 45 minutes at 250° to 300°F. without discoloration. One especially valuable feature is that any heavy portions of the coating, due to dipping an irregular shaped article, bake through hard, leaving no "soft spots."—199

Flatone Finishing Varnish—Meets the highly specialized requirements of metal decorators; has a uniform flat sheen. Looking across a sheet, the tone is uniform and shows no glossy spots. It is ex-

tremely tough and hard and will not mar readily. Checking or crystallizing of the film will not occur. Sheets come out of dies clean and unscratched, without a smeary or greasy top appearance. The varnish bakes hard and prevents sheets sticking together after baking in hot, humid weather. The surface has a smooth velvety texture. Baking cycle: 230°F. for 14 minutes. —200

Brown Synthetic Bed Enamel—An unusual development which reduces 50% with ordinary reducer; sets up dust-free in one minute; bakes for one hour at 250°F., or any variation in degree of heat and length of time . . . . Has excellent mileage; beautiful luster; is print-proof; permanently elastic and represents a new thought in a finish in this field. Can be made in other colors as well, retaining the same qualities.—201

Alum-Cote "X" — An aluminum-like coating applied by a sheet roller coating process to the sheets, and then subject to a baking temperature of 350°F. for 20 to 30 minutes. After this process the coating will withstand extreme fabrication.

"We have had stampings made of this type of finish on 20 and 22 gauge sheet metal for pressure draws effected from these sheets." —202

Heat-Resistant Finishes

There are many products and surfaces on which a high-heat resistant finish is particularly desirable. Numerous requests come in from time to time to INDUSTRIAL FINISHING for finishing materials of this type. While a clear wood finish that will withstand cigarette burns is something extremely difficult to attain, there are finishes for metal which manufacturers claim will withstand as much as 1000°F. Several special aluminum paints and finishes are in this list. High-tension cable lacquers are also included.

Heat-Resisting Black Stove Enamel—This enamel, when applied over the bonderizing process, has excellent adhesion and when cast iron parts are heated to 500°F. there seems to be a fusing of the paint film with the rust-proofing process and the metal to produce an extremely hard, durable, dull black finish. When this same enamel is applied over untreated metal and heated to 500°F., the results are not so good, indicating that it is necessary to have the combination process of bonderizing and painting. Heat-resisting black stove enamel will reduce 10 to 1 with naphtha for spraying purposes or can be used full body for brushing; will cover from 300 to 500-sq.ft. per gallon, and will air-dry hard overnight.—203

Hilume—A vehicle for use with aluminum powder or aluminum paste; seems to fuse to the metal so the metal may be heated red hot, yet the aluminum holds fast. For best results on extreme heat, use 2-lbs. of aluminum paste to one gallon of Hilume heat-resisting vehicle.—204

High-Heat Aluminum Lacquer No. 7034 — Furnished in a ready-mixed form, requiring only thinning with lacquer thinner in equal parts for use. When applied direct to metal, the article may be heated to a red heat without causing any discoloration whatsoever or loss of adhesion. Produces a smooth brilliant finish, covering well in one coat.—205

Aluminum Paste (Special)—Made to withstand all atmospheric conditions for interior or exterior use; will stand 800°F.; gives a finish similar to a silver plate; very smooth and brilliant, and will wear outside for five years. Made with a high-grade vehicle and put up in double compartment cans with the alumi-

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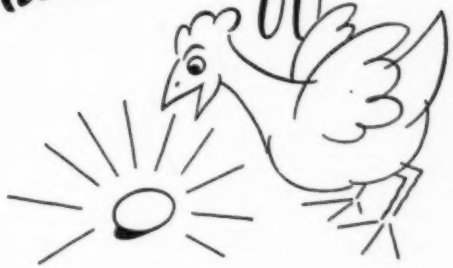

ALL shellacs are not alike. They vary in quality. And they vary in effectiveness in proportion to their freshness.

Du-Pros is made only from pure shellac gum and Government test alcohol. To insure quick drying, easy sanding and a tough, durable finish, every gallon of Du-Pros Strictly Pure Shellac is freshly made when shipped.

Other fine Day finishes are enamel, stain, filler, sealer and lacquer.

DU-PROS *is fresh shellac*

JAMES B. DAY & CO.

• CHICAGO •

num paste in the upper compartment and the liquid in the lower one. Can be used on any surface.—206

Ready-Mixed Aluminum Paint—Overcomes all of the usual disadvantages of this type of aluminum. It leafs perfectly, will not discolor, and has exceptionally high hiding and covering capacity. The aluminum remains in suspension, retains its leafing properties indefinitely; has unusual and sustained brilliance. Available for dipping, spraying or brushing. High-heat resistant, acid resistant, abrasion resistant, and other specially treated aluminums are available in the ready-mixed form.—207

"Infernite" — The 1000° aluminum paint. A new type aluminum paint for stacks, boiler doors, ovens, furnaces, engines, radiators, exhaust pipes, and any other metal surface where unusual heat is encountered. Will not crack, peel, or blister at red hot temperatures. "Infernite" covers perfectly in one coat and can be applied directly to hot surfaces without disturbing normal plant operations. "Infernite" dries rapidly and yields a smooth, brilliant, silvery finish.—208

Torrid Cote—A high-tension cable lacquer that has stood 300°F. over a period of 100 hours, then bent over a ½-in. mandrel without showing any cracking or breaking. It is an unusual material and has been adopted by many of the cable producers.—209

Super-High-Heat Cable Lacquer—Capable of withstanding high temperatures for indefinite periods of time; remains flexible after being exposed to dry heat at 300°F. for 100 hours, and at zero for ten hours; is non-burning and oil-proof.—210

Rust-Resistant Coatings and Treatments

The damage and unsightly appearance caused by rust forming on the surfaces of iron and steel products is familiar to everyone, therefore the development of coatings and treatments to prevent or halt the formation and spread of rust really offers something of great value to industry—and to the public in general. Rust is sometimes called "slow fire" which eventually consumes unprotected iron and steel products. It is important that this slow fire be prevented from starting, or from spreading and continuing its deadly work once it does start.

R-700 Rust Inhibitive—Not a varnish or lacquer. A carefully balanced combination of unusual synthetic materials developed to offer the following desirable qualities: 1) Maximum resistance to rust under all conditions; 2) Quick drying time to fit in production schedules; 3) Unbelievably tenacious adhesion to all metals; 4) Wide range of time and temperature schedules; 5) Suitability as a permanent priming coat under other finishes; 6) Leafing and suspending powers for bronze powders; 7) Clarity and lightness of color.—211

Ferrubron Protective Coating—"Prevents Rust Everywhere." The composition of Ferrubron allows for remarkable covering capacity. Ferrubron pigment particles are such that these flat irregular discs overlap one another like the scales of a fish, forming an elastic paint film impervious to moisture. This structure of the pigment allows for 16 to 20 layers of protection with only two coats of Ferrubron . . . . not heavy enough to make a bulky paint structure. A non-conductor of electricity; easily applied with brush or spray; very opaque; non-cracking; non-chalking.—212

Rusticide "50"—Cleans and etches the metal, leaving a rust-proofed surface ideally conditioned for painting. Based primarily on the original

Rusticide formula, the new product immediately dissolves from the metal all foreign materials such as grease, oil, wax and surface oxidation. Deeply pitted rust can be removed instantly in presence of Rusticide "50" with the aid of steel wool. This eliminates the necessity of sanding.

Shipped in concentrated form, the material is diluted with two to three parts of water; may be applied with cloth, brush or spray gun and is removed either by wiping with dry cloths or dipping in water. The metal is ready to paint ten minutes after treatment and is protected from fresh oxidation for a period of several days.

Rusticide "50" is non-inflammable, non-explosive and non-toxic. Its quick action and prompt drying make it entirely suitable for high-speed production work.—213

"Synhibit" Process—A new method of protecting exposed steel structures; involves a wire brushing to remove loose rust, and an application of Synhibit inhibitor which kills rust remaining on the surface or in the cracks and renders passive the entire surface so that after finish coats of Synhibit primer and top coat have been applied, further rusting cannot progress. The metal will be protected against corrosion as long as the protective film endures.

The protective films of Synhibit paint are true synthetic materials and combine both the virtues of the phenol formaldehyde resins and those of the glycerol phthalate type of resin . . . . maximum waterproofness, adhesion to metal, resistance to ultra violet light and to industrial fumes and gasses.—214

Electro-Granodizing—A unique alternating-current electrolytic process which, instead of depositing metallic zinc, as in direct-current electrolysis, plates the metal with a continuous coating of zinc phosphate.

The result: A coating which, like electro-plating, is rust-resistant in itself, but which is dense and smooth to "take" paint even better than conventional phosphate coatings; a coating which does not require immediate painting but which may be stored and shipped before painting; a process that permits uniformity of results to be guaranteed . . . . which is simple, foolproof and already working successfully on both small and large scale operations.—215

Spray-Granodine — In this process the same chemicals are used as in the Electro-Granodine process, but these are applied by high pressure sprays in a washing machine arrangement instead of by alternating-current electrolysis. The Spray-Granodine process forms its coating in less than one minute, and forms a very effective surface for increasing the life of applied finishes. Offers simplicity, speed and economy. —216

Cromodine Process—Does not produce a substantial coating but rather alters the character of the metallic surface itself; practically nothing separates the paint from the metal. The practical Cromodine process is carried out in the following stages: 1) cleaning, 2) removing the cleaning material, 3) Treating with Cromodine solution, 4) removing the Cromodine solution, 5) drying, 6) tack-ragging, 7) painting.

In small and large production the first four stages can be carried out with four vats into which the objects to be treated are dipped, and over which suitable handling equipment is provided for speed and convenience. In large production the four vats can be replaced by a 4-stage washing machine in which the treating material of each stage is applied to the objects by showers. The objects being rust-proofed are carried through the washing machine on an overhead conveyor.—217

Anti-Corrosive Enamels — A new line of air-drying enamels, especially designed to prevent the corrosion

of iron and steel in railroad, marine, mining, oil and general industrial service. These anti-corrosive enamels are made of rust-inhibiting pigments and a synthetic resin vehicle, and form a hard, tough coating that is resistant to wear, and of pleasing appearance. Exposure tests, conducted for a long period of time, show that they are particularly effective in providing protection from the corrosive action of humidity, salt water, alkali, and a variety of chemicals, and in preventing electrolytic action, according to the manufacturer.

A single coat gives adequate protection where the exposure is not prolonged or severe, but for maximum protection two coats are recommended. Can be applied by either brush or spray; air-dry in four hours and are hard overnight. Types for baking for one hour at 250° to 350°F. can also be supplied; cover approximately 350-ft. per thinned gallon. Available colors are brown, black, red, and a bronze liquid, which serves as a vehicle for aluminum and other metallic powders.—218

Paper, Rubber, Leather Coatings

Finish coatings for these materials must have excellent adherence, great flexibility and usually high luster. Several good materials have been developed for this purpose, many of them being adaptable for application by roll-coating machines.

Paper Lacquer—A lacquer coating which is applied by means of a coating machine; for producing a high-gloss flexible finish.—126

Paper Lacquers—Deposit a high-gloss residual film on paper; can be sprayed or roller coated; impart an oil and moisture-proof film; add to the attractiveness of the finish on the paper.—128

Paper Lacquer—Deposits a film of such great thickness that excellent simulation of regenerated cellulose foil lamination is secured.—127

Paper Lacquers—Suitable for application to paper labels, wrappers, cartons, etc., to make such structures impermeable to moisture vapor. Made in both heat-sealing and non-heat sealing grades.—129

Water Emulsion Lacquers—Suitable for sizing such porous structures as box-board, paper mache, blotting paper, fabric and the like. Use of this type of size gives a flexible interface at the porous surface and does not depend upon the use of pigments, fillers, etc.—130

Special Water Emulsion Lacquer—Suitable for flushing out the interior of paper oil cans, cones, and the like. Made in wide variety of colors.—131

"Candoc" Cardboard Lacquer—Specially built for a high-gloss and elastic film for surfaced cardboard. Adjusted to automatic or manual spray and roller coating machine application. Not subject to cold checking.—132

Lacquer for Rubber—High in gloss; has such extreme flexibility that it will permit a stretch of from 30% to 40% without breaking the film or cracking or showing the effects of the stretch in any way. This lacquer comes in two types, one for baking and one for air drying.

The baking type lacquer can be applied on cured or uncured rubber, preferably on uncured rubber just before the vulcanization. During the process of curing, which is usually a bake of two hours at 250°F., the lacquer adheres as a continuous film to the rubber surface. This baking lacquer is also applicable on cured rubber, but here it takes a bake of from one-half to one hour at 230° to 250°F.

The air-drying type rubber lacquer will dry within two to four hours.

A low bake is permissible in this case for approximately 1½ hours, which speeds up the drying time considerably. The gloss is excellent; all colors are available; "the flexibility is beyond anything that has come to our notice."—133

A Specific Process—The necessary finishing materials have been developed to permit the refinishing of worn out, cracked and peeling leather and imitation leather theatre seats and automobile upholstery. The process is operated without removal of the fabric from the framework. —134

Crystalustre—A new lacquer for paper and cardboard; intensifies colors; is proof against ordinary scratching, marring, smudging, and readily withstands washing. Crystalustre, the manufacturer claims, is flexible, colorless, odorless, quick drying, and easily applied; protects the surface to which it is applied from dirt, discoloration, stains, and the effects of water, soap, grease, oil and fat, alcoholic beverages, and it will not darken with age, discolor white or light colors, or become soft and tacky.—135

Bronze Powder Finishes

While these finishes are used chiefly for decorative purposes, they are also splendid protective coatings for the surfaces of many different products.

Bronze Pastel Colors — A line of very pleasing pastel shades of bronze powders, suitable for finishing novelties, hardware, wall coverings, caskets and burial vaults, metal florists' vases, etc. Most any shade of pastel color can be supplied in any desired fineness.—219.

Gold, Copper and Aluminum Powders — Gold, copper and aluminum powders processed to give a smooth bright finish when applied by roll-coating machines. This process assures remarkable covering capacity of the powder and consistently uniform results.—220

Gold Bronze Powder — In paste form; has been tested for interior as well as exterior use and it is very durable and will stand all atmospheric conditions both inside and outside.—221

Sunbrite Bronzes—In silver, gold, copper and intermediate shades, all of great brilliance. Manufacturer states that "in the manufacture of the new Sunbrite Silver Powders the difficulty of mixing a heavy powder, such as copper or gold, with a light powder like aluminum presented many difficulties of settling out of the heavier gold or copper powders with resultant changes in shade in both the dry and wet form when mixed with lacquer or varnish. These problems have been overcome by different polishing oils on the golds and aluminum powders, and through a new process of polishing, assuring uniform shades in both the powder and wet forms with a minimum of settling or color change."

The manufacturer claims several economies — increased coverage because of thinner flakes, use of less lacquer, less rubbing, etc.—222

Miscellaneous

In this miscellaneous group are process paints, finishes for glass, Venetian blinds and cables; swimming pool paint, preservative coatings for exposed wood and metal, acid and alkali resistant finishes, rubbing lacquers, metal polish, etc.

Glass Lacquer — Particularly formulated for application on glass ware. Its adhesion to this type of surface is unusually good and it retains this property over long periods of time; dries with the speed of regular lacquer type materials and will withstand considerable handling and abuse.—226

High-Solids Surfacer—A synthetic surfacer containing 63% solids at spraying viscosity; can be sanded within four hours; has good filling and building properties and holds out the succeeding coats to a marked degree.—223

Synite Lacquer—A high-solid synthetic lacquer particularly adapted for high-luster finishes; requires no polishing; dries with a high initial luster, the retention of which approaches that of a baked synthetic enamel. Three coats of this material will give the equivalent build of five coats of a normal pigmented lacquer.—224

Lacquer Emulsions—Among these are materials suitable for coating oil containers and moisture-proof materials for fruit containers, etc.; are also unusually well adapted for sealing porous surfaces such as wallboard over which finishing coats are to be applied; have the unique property of being able to deposit a uniform continuous film on top of porous surfaces; can be roller coated, sprayed or dipped.—225

Thermo Sealing Lacquer—So formulated that it can be softened by the application of heat and pressure. When this is done it will tenaciously hold together two pieces of any such materials as paper, cardboard, cloth, etc. Can be applied by spraying, roller-coating or dipping. It dries with the speed of regular lacquers but is waterproof and oil-proof.—227

Rubbing Lacquer No. L-1032—This lacquer is water white in color, carries a high solid content with a low spraying viscosity; can be used on any work where lacquer is used, but its true value is appreciated more readily when applied over very pale colored or aluminum bronze finishes. Should be used as it comes from the package; can be sprayed in the usual manner; will flow out to a full and even body finish free from wrinkles or runs; film is very tough and elastic and it imparts practically no color to the finish; can be rubbed as any lacquer with very little effort; can be reduced with lacquer thinners.—228

Pearl Essence as Primer—"Pearl essence as a primer for catalin has been established over four years. A pearl lacquer has been found to adhere to catalin better than any other known material. Pearl essence on Bakelite is superior for adhesion to any known product but is not entirely satisfactory. The same holds for beetleware and like material. Pearl essence on glass is fairly good . . . . but not the final word.

"You will see evidences of this this coming spring. Chain store items will come up with a pearl finish which was made possible through the use of a pearl essence primer."—229

Synthetic Venetian Blind Undercoat and Synthetic Venetian Blind Finishing Coat—These products are being used by the largest Venetian blind manufacturers in the country for obtaining a finish that meets the stringent present day requirements.—230

Duraflex—A Venetian blind finishing system which gives speed in production. Duraflex is available in the most attractive pastel shades which are now popular for Venetian blinds. All of these colors are fast to light, retain their luster, and have the minimum amount of porosity which means less opportunity for dust and dirt to adhere to the surface.—231

Chemox—Chemox is an acid and alkaline resistant finish.—232

Superfine Washed Aluminum Lining Powder—A very fine aluminum, so fine that not more than 4 to 5-oz. per gallon of vehicle are required. Looks, feels and finishes just like plating. "A 10-lb. can has the bulk content of a 25-lb. drum of regular aluminum."—234

Aluminum Powder—An aluminum powder of exceptional whiteness and reflection value, suitable for application on radiators, structural iron, water and oil tanks, etc.; for spraying or brushing.—233

Pastel Color Finish Varnishes—Lend themselves particularly to the closure field, developing new designs catering to eye appeal. These have found great favor in the cosmetic field.—235

White Silk-Screen Synthetic Paste—For use on silk screen signs, cloth, etc.; air dries tack-free overnight, and hard in 24 hours. Its chief advantage is its great flexibility, but it also has good gloss, solid covering and excellent adhesion. Should be applied without reduction or, at the discretion of the operator, it may be reduced slightly with mineral spirits if deemed necessary to obtain best workability.—236

Process Paint—This particular item is for paint processing on silk screens . . . . for particular use on cloth, silk, velvet, rayon, velour, etc. On cloth the particular merits are its durability when exposed outside, and reasonably fast drying. Its easy, rapid-working properties help to make unnecessary frequent washing of the screen.

"For silk, velvet, satin, etc., we manufacture another paint which not only has considerable durability and flexibility plus fast drying, but also a gloss for appearance sake, and what is particularly essential, leaves no 'rings,' as often appear when processed on light colored materials.

"We recommend the same liquid used in conjunction with aluminum pastes or gold or copper bronze powders, which is the only material we have seen that can be used in process work satisfactorily."—237

Rapid-Cote Cable Lacquer—Is capable of speeding up production by increasing the speed of application from 30 to 40-ft. per minute to 100 to 150-ft. per minute, with no sacrifice of build or other inherent properties associated with cable finishes, whether they be low tension, high tension, or intermediate cable finishes.—238.

Non-Discoloring Cable Lacquer—For use on low-tension ignition cable that is made of particular compounds which normally have an effect of discoloring fabric and ordinary cable lacquer coatings. Non-discoloring Cable Lacquer is not affected by the compound and will stand eight hours heat at 250°F.—239

Las-Stik Wood Putty—Will not shrink; applies easily; adheres perfectly; takes stains, paints and varnishes satisfactorily; available in colors.—240

Rubbing and Polishing Compound—Especially designed for burnishing lacquer and varnish finishes by closing the pores and hardening the surface to a glass-like luster. A finish of this kind does not cloud or discolor, but will withstand considerable abuse. Machine application only.—241

Metal Polishing Compound—Made to remove corrosion on all metals, as well as polishing surfaces to the highest luster obtainable; will polish chromium, bronze, brass, silver, glass and copper.—242

Coppr-Black (Preservative Paint)—Formulated and developed as a protective material for any surface subjected to salt or fresh water submersion, salt air, underground or under any severe atmospheric conditions. If the surface of iron and steel has been properly cleaned, and two or more coats of Coppr-Black have been applied, the resulting protective coating will resist humid atmospheric conditions of high percentage and the elasticity of the film against the sun and wind will remain as a protection for a long time. The color is gloss black with brown toned cast, which eventually

turns to verdigris green. Dries dust free in from three to four hours; dries for recoating in from five to twelve hours, depending upon drying conditions, and finally dries hard but flexible, in which state it remains until destroyed. Can be used on metal or wood.—243

Swimming Pool Paint—Intended primarily for use on concrete pools; is resistant to caustic washing powders, the chlorine added to the water in swimming pools for sanitary reasons, and to the general rough usage to which such finishes are subjected. May be applied directly to new concrete or old providing the surface is thoroughly clean.—244

One-Coat Mill Finishes—Mill whites in flat, semi-gloss or high gloss that cover any surface in one coat and brush easily. Will not run or sag. —245

This No. 1 Fine Compound is especially designed for machine rubbing and polishing caskets, tile boards and all lacquer and varnish coatings. It burnishes the surface to a glass like luster that will not cloud. Used by leading manufacturers in the United States. Write for samples.

H. & N. COMPANY

1310 E. 14th St. Cleveland, O.

Protex—A material that temporarily protects objects from surface injury during manufacture, storage or shipment. Objects to be protected are covered or shrouded with a closely fitting adhering, tough, elastic coat, which covers the object like a skin. This tough skin, though it adheres to the object, can be peeled off with ease and removed with extreme rapidity. Such a temporary skin protects against mechanical injury and chemical attack. Highly polished surfaces are protected from being marred; fragile surfaces (glazings) are protected against chipping. All surfaces are protected against the corroding and soiling influence of dust and atmospheric conditions. Can be brushed, dipped or sprayed. The protexes are easy flowing milky liquids, containing a certain amount of water but no inflammable solvents.—246

Lithoform—A non-inflammable liquid chemical that coats zinc and cadium so that the peeling of all types of paint, lacquer, enamel, and japan is prevented. Lithoform is shipped in standard glass containers up to 12-gallon carboys, and in larger quantities in rubber-lined barrels. This chemical forms a dense, stone-like coating of zinc phosphate that is not affected by the atmosphere, that will not chip off, and that forms a firm and lasting bond with paint.

Suggested Schedule

1) Remove old paint, oil or other coating.
2) Lightly scrub the metal with fine steel wool.
3) Apply the Lithoform (brush, spray or dip).
4) Wait a minute or two for the coating to form.
5) Wash the coating with water.
6) Dry the coating (or wait until it dries in the air).
7) Apply the paint.

To lithorize galvanized or galvannealed structures, the painter uses Lithoform No. 2, undiluted. One gallon covers about 1000-sq.ft. of galvanized iron.—247

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THE NEW SHRIVEL

I'm a low heat, short bake shrivel or wrinkle that is fool-proof — I give the desired result every time, whether put into the oven as soon as applied or 24 hours later.

My tough film is unaffected by water, alcohol, oil or grease. My wavy finish hides imperfections in otherwise smooth surfaces.

Send for my Bulletin No. 15 and for a free sample of me, I'll come in your choice of colors — black, brown, red, gray, green or ivory. Just write — "Send Rip-pl———."

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HILO

73 Years Experience in "Better-The-Finish"
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Varnishes Enamels Japans Lacquers

(Continued from page 32)

rials are poured down the tin panels which are positioned at a 45° angle, with the bent part at the foot (see Fig. 2). Observe the time of pouring and then note the number of minutes it takes

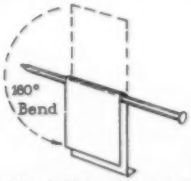


Fig. 3—The 180° bend to test the flexibility of the lacquer or varnish coating.

for the film to set sufficiently to be tacky like honey—so that the panel adheres to the finger slightly. This is the point at which absorption of the lacquer (19) almost ceases. Then note the time it takes for the film to become dry enough to "shed" fine sand, or be "dust free." At this point the film is dry enough to withstand light finger rubbing without leaving a mark.

The "print free" stage (7) is the point in time at which the film will not take an impression from the thumb pressed down hard. This may vary in lacquers from one or two hours; or it may range from a half an hour to 24 hours with varnishes. With oils it will vary from a few hours to several weeks. While one is making the first drying tests up to and including No. 6, he should be slowly blowing upon the coated panels with his mouth held wide open and about 2-in. from one corner of several panels, so as to reveal their relative blush proofness (8).

After several hours, any tendency to "arch" (9) will show up in the angles at the bottom of the panels. Wrinkling should not be confused with arching. When the film is thoroughly dry, the panels should be bent 180° over a one-penny nail, and the flexibility observed (10)—see Fig. 3. The adhesiveness (11) after being bent is revealed by scratching near and on the bend.

The gloss or dullness (12) of the films may be compared by looking at the reflection of a coarse screen placed between the films and a window.

The smoothness (13) can be accurately gauged by looking at the reflection of a slit of light at a certain distance—say, 10-ft.

The water (14) and alcohol proofness (15) are readily tested by placing one end of the bent panel in water and the other in

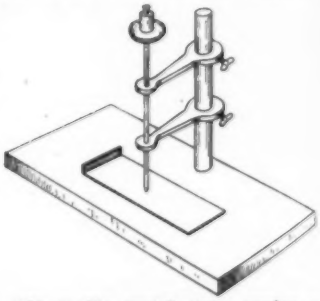
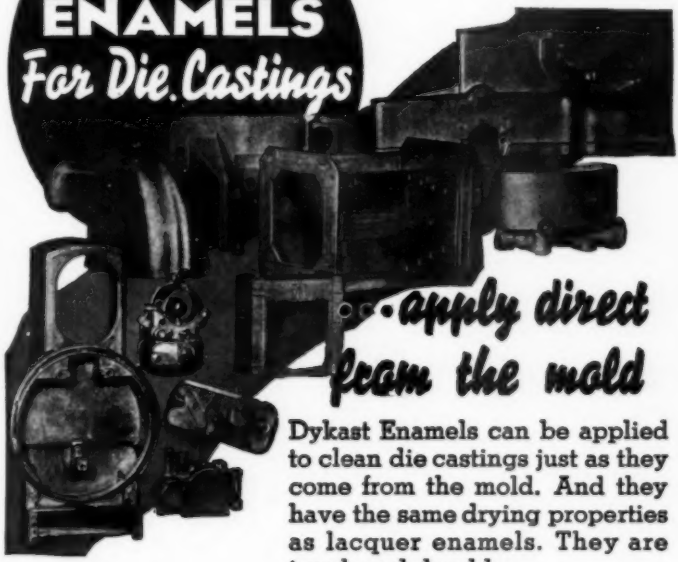


Fig. 4—The scratch test — moving a coated sheet of metal under a case-hardened nail mounted vertically and weighted at the head with a small weight pan and weights of various gram-weight sizes.

a 50/50 mixture of water and alcohol for several hours, leaving enough surface exposed to make room for a scratch resistance test (16) on one side of the bend, and a space on the opposite side for an outdoor exposure test for durability (17) and yellowing (18) when nailed to a wall fac-

DYKAST ENAMELS For Die Castings

Like other M&W finishes, Dykast Enamels are designed to do a particular job . . . to give a fine finish on zinc and aluminum die castings in one air-drying coat.



. . . apply direct from the mold

Dykast Enamels can be applied to clean die castings just as they come from the mold. And they have the same drying properties as lacquer enamels. They are tough and durable.

Dykast Enamels were developed after our Research Laboratory studied the various problems involved in finishing die castings. We are prepared to supply complete recommendations for this type of work. Supplied in gloss and egg-shell sheens, in white, black, and 32 standard shades. Special colors if wanted. For spraying or dipping.

Makers and users of die castings should send for information on Dykast Enamels at once.

MAAS AND WALDSTEIN COMPANY
438 Riverside Avenue Newark, New Jersey
Branch Offices and Warehouses:
1336 Washington Blvd., Chicago 1228 W. Pico Blvd., Los Angeles

Producers of Lacquers and Enamels for all purposes

ing the southern sun. The scratch resistance is measured by sliding the lacquer-coated test panel around under a rounded off, case-hardened nail which is supported in vertical position by two metal bearings, and which has a tiny scale pan soldered to the nail head for holding gram weights (see Fig. 4). The point at which the nail begins to mar the lacquer with increasing weight is the "scratch resistance" expressed in grams.

The durability (17) of a top finish is very important and may be technically considered as the time necessary for a film of finishing material to check, peel or "powder off," so as to give very little protection to the under surface. To determine the relative value of a number of finishes, the same material should be used for panels in each case. The tin panel used in the other tests, or a freshly prepared one will be adequate for a rather quick test. To get more than a relative idea one should test the finish on the material with which it is to be used.

Test 4—The pouring test on wood is made by pouring lacquer across both sides of 2x6-in. gum wood panels which have been properly filled and sealed. When dry, the different lacquers will show the relative loss by absorption (19), and the touch of the fingers will reveal any grain raising (20) if present. After several hours of drying time, a sanding test (21) can be made, trying out the customary methods and materials used in regular production. The interval elapsing between time of application and the point at which sanding can be done without "gumming" the sandpaper, is the "sanding time."

Roughly pulling the handle of a knife across the lacquered surface will show relative mar resistance (22), and waxing the surface with an ordinary wax will reveal the lacquer's resistance against turning white under the influence of wax solvents or waxes (23). By applying several coats of lacquer on the wood and allowing each a proper length of time to dry, one can readily determine the number of applications necessary to produce a substantial finish (24).

Test 5—The brushability (25) may be tested on any clean flat surface. One should note the pull on the brush and the ease with which air bubbles may be avoided. Also, observe the laps and brush marks.

Test 6—The spraying test (26) may be made on a piece of filled and sealed wood to determine the tendency to form powder when sprayed, to determine the flow, the blushing, etc.

Loss by evaporation (27) in handling will be relatively proportional to the "tack free" time.

The suitability of a finish as a sealer (28) may be tested in the same manner as you would test regular sealers.*

Test 7—The storage test (29) can be quickly made by painting a tight sample can black, and placing it where the direct sun will shine on it every day, or in a drying oven which stays at 100° to 110°F. The sample should be removed and tested every few weeks to see if it has changed in viscosity, color, drying time, etc. —providing the finish is worthy

*See articles by the author in Oct. and Nov. 1934 issues of this magazine.

INDUSTRIAL COATING PROBLEMS

In a modern laboratory with complete scientific apparatus at their disposal, a corps of experienced chemists study each manufacturer's coating problems from a theoretical and practical standpoint.

Knowledge acquired only through years of experience enables us to offer materials formulated to meet your exact requirements.

Stanley Specialized and Standardized Quality Coatings are available for metal, wood, rubber, paper, cloth, leather and other base materials.

We welcome the opportunity of studying your problems.

THE STANLEY CHEMICAL CO.

EAST BERLIN, CONN.

LACQUERS - SYNTHETICS - ENAMELS - JAPANS

A Subsidiary of THE STANLEY WORKS, NEW BRITAIN, CONN.

of further tests. Lacquers may change in viscosity a great deal, while varnishes or oils tend to increase their drying time considerably, especially if they contain soluble liquid dryers.

A moisture-proof test (30) may be made on one of the wood panels which has been coated on both sides, both edges and both ends, by weighing it when dry and again after it has been suspended over a pan of water that has been kept at a temperature of about 140°F. for several days.

The ease of removal (31) from equipment is noted when cleaning up for the next test. One should note whether special solvents must be used and whether or not solution takes place quickly.

The tendency to cause bleeding of pigmented sealers or enamels, stains or shading lacquers can be observed by coating a stripe of each of these materials on a wood panel; then pouring a sample of the finish across these stripes, and supporting the panel in a vertical position as it dries. These same panels can be exposed to the sunlight to determine the ultra-violet protection (35) to dyes and stains and pigments by the finish being tested.

The ability to withstand strong soda water, ammonia, or dilute lye solution (36) such as is sometimes used on finishes, should be tried on one of the wood panels.

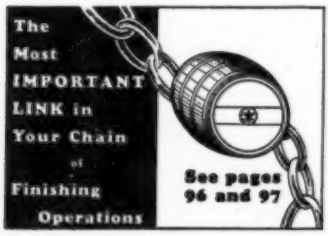
Great quantities of finishes are used on ocean-going ships, therefore a salt water test (37) should be made on a metal or wood panel, or both, if one is manufacturing articles for this trade.

After several days, weeks or months of exposure, the metal panels will begin to show failure by chalking, peeling or cracking (38). Airplane finishes should remain glossy as long as possible, because any roughness or even chalking will increase gasoline consumption several percent due to increased air friction. Since wax is often used on airplanes to reduce air friction, a test of the wax's effect on the type of failure may also be made, providing one is supplying the aviation trade.

Some lacquers, such as the glyceryl phthalate resin lacquers, tend to prevent corrosion (39) even when they are not very waterproof. This is an important feature of interest to the metalcraft industries, and should be noted on the exposure panels as time passes.

The relative tendency of oils and varnishes to skin over (41) should be tested by storing samples in half-filled closed bottles for several days, and noting the amount of skin produced, as well as the time at which it starts forming. This is a very important factor in handling such materials, because small pieces of skins will ruin any finish.

The coverage (32) of any finish on an impervious surface is directly proportional to the percent by volume of non-volatile material, and inversely related to the



THE OUTSTANDING

W. P. C. DEVELOPMENT

DURING 1936

Absolute *QWIK-DRY FOUNDATION FINISH*

HERE ARE THE ABSOLUTE FACTS—

1. Fills and Stains in one operation.
2. Cleans up easier and with more evenness than ordinary Wood Fillers.
3. Will not raise the grain.
4. Dries to re-coat in ONE HOUR under normal factory conditions. Requires no force drying.
5. Filler will not lift, turn gray or shrink in pores.
6. Acid Aniline Colors assure clearness of shade, permanency and non-fading.
7. Saves one Stain operation, one light sanding and two handlings.
8. **SETS PRODUCTION AHEAD ONE FULL DAY.**

LET US PROVE THESE ABSOLUTE FACTS

Write for samples of standard shades or send color panels with samples of your wood to be matched in

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Write either Factory

WOODFINISHING PRODUCTS CO.

34-48 INDUSTRIAL STREET
BRONX, NEW YORK CITY

572 WAUGHTOWN STREET
WINSTON-SALEM, N. C.

viscosity and drying speed. In other words, by our viscosity test we will know that the more viscous materials will spread or spray on heavier and therefore not go so far. If they dry rapidly, the result will be similar.

The cost per article coated (33) is a rather complex quantity and in actual practice this depends less upon the cost per gallon than the coverage, the business getting qualities as stimulated by the finish's beauty, wearing qualities, durability, mar-proofness, water and alcohol-proofness, etc.

Stanley Chemical Co. Elects Officers

At a meeting of the stockholders and directors of The Stanley Chemical Co., East Berlin, Conn., on Monday, November 23, Mr. W. J. Kerin was elected President and Treasurer, succeeding the late Wm. S. Rowland as head of the company. Mr. E. M. Hayden was elected Vice-President and Secretary, and Mr. Edw. H. Christ, Vice-President and Sales Manager. These officers, together with Mr. C. F. Bennett, Mr. E. A. Moore, Mr. R. E. Pritchard, Mr. E. W. Christ and Mr. J. E. Cooper, comprise the Board of Directors.

Mr. Kerin came with the company from The Stanley Works on January 1, 1919, and for many years has been treasurer. Mr. Hayden, who has been in charge of the technical development and research, has been with the company since 1919 and Mr. Christ has been sales manager since he became a member of the organization in 1926.

Beautiful Finishes

In plated, polished and satin effects can be obtained with our special shaded Gold and Aluminum Bronze Powders. Samples and color card gladly submitted upon request. Write EDWARD C. BALLOU COMPANY, 259 West 14th St., New York City.

Glidden Systemized Industrial Color Book

Excerpts from The Glidden Co.'s letter announcing a new industrial color book:

"For many years the Headquarters Industrial Sales Division has realized the need of a standardized industrial color chart. The issuance of such a chart presented innumerable difficulties, however, particularly with reference to color selection, mechanics of construction, number of colors to be displayed and cost. . . .

"After adoption of the Munsell Color System, we realized the possibilities afforded by this calibrated method of color determination, and as a result we really concentrated on what could be done with a standardized industrial color chart, the result being our new Industrial Color Book. Mr. C. R. Smedley, our color consultant, through his previous experience in color harmony, has been of considerable help in the determination of what colors should be shown on this chart. The colors were so arranged by him as to show their beauty in mass form, and he has supplied us with information as to those colors that properly harmonize with each other.

"This book has created a lot of interest, particularly among designers and manufacturers who were able to see a copy of it at both the Chicago Furniture Show and the New York Furniture Show during the month of January. Our salesmen are all enthusiastic regarding its use because this is the first time they have ever been supplied with a color book with such a vast range of colors—namely, 168. . . ."

Maas and Waldstein Co. Elects Officers

On December 8, following the annual meeting of the stockholders, the Board of Directors of Maas and Waldstein Co., makers of lacquers and lacquer enamels, Newark, N. J., reelected the following officers: President, M. A. Maas; Vice-President and General Manager, G. Klinkenstein; Treasurer, R. F. Magnus; Assistant Treasurer, C. L. Anderson; Secretary, G. Klinkenstein.

Mr. Maas' reelection to presidency marks the twelfth successive year in which he has held this office.

Mr. Klinkenstein was elected general manager of the company last year.

Questions & Answers

Crystallizing Lacquer

Editors Note—This is a reply to an inquiry that appeared in December issue.

We noticed in December issue, of INDUSTRIAL FINISHING, pages 5 and 6, that C. Mfg. Co. has encountered difficulty in securing a crystal lacquer finish on top of a solid lacquer color. We have a standard product which we believe will overcome this difficulty. This material is Crystal Sealer No. V227. The procedure for the use of this material together, with Clear Crystal Lacquer No. V388 is as follows:

When a clear crystal finish is desired on top of a colored lacquer enamel undercoat, the colored enamel finish is secured in the usual way, building up with primer, surfacer, and one or two coats of the desired shade of lacquer enamel. The top coat of enamel must be allowed two or three hours drying time or longer, after which the crystal sealer is applied. Spray one double coat of crystal sealer in the consistency supplied in the container. This should be allowed to air dry 16 hours or overnight, and then followed with one spray coat of crystal lacquer. If a depth of design is desired, spray a double wet coat of crystal lacquer. The work should then be placed in a room, free from draft, at a temperature of 70°F. This will give a beautiful crystal finish of pleasing modernistic design.

A copy of our direction sheet, giving further details, follows:

Crystal Lacquer

The finishing procedure for 2-tone combination in lacquer enamel and clear crystal lacquer finish for wood, metal and composition products is as follows:

In order to obtain satisfactory results on 2-tone combination lacquer enamel and clear crystal lacquer finishes, it is necessary to use colored enamels formulated consistent with the succeeding intermediate coat of crystal sealer to produce the necessary foundation to obtain a desirable crystal pattern.

The enamel undercoat and clear crystal sealer may be sprayed at whatever air pressure the operator is accustomed to using. The crystal lacquer, however, must be sprayed with an air pressure of approximately 40-lbs. on the air line to obtain the best results. It is important that a double wet coat of crystal sealer be applied over the enamel coat, so as to prevent any crystal lacquer from penetrating through the sealer coat, which would prevent a complete crystal design. We recommend the following for best results:

Apply one spray coat of colored enamel; allow this to dry two to three hours; apply one double spray coat of No. V227 clear crystal sealer; allow to dry overnight. The following morning, spray on one coat of clear crystal lacquer. If depth of design is desired, spray a double wet coat of crystal lacquer.

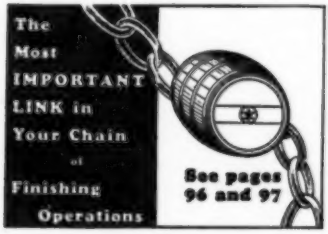
Silver or Bronze Crystal Finish

One spray coat of gray enamel undercoat; allow this to dry two hours; apply one double coat of No. V227 crystal sealer to which has been added eight to ten ounces of silver or bronze powder per gallon, the powder to be mixed with a small amount of T8 sealer thinner before adding the No. V227 crystal sealer. Allow this to dry eight hours or overnight; one heavy spray coat of No. V388 crystal lacquer.

Immediately after the silver or bronze crystal has been applied, the wet work should be placed in a room or other suitable place free from draft in which the temperature is not above 85°F. A room temperature between 60°F. and 70°F. is preferable.

Antique Crystal Lacquer Finish

After the work has been finished with crystal lacquer and surface is free from tack, proceed with pigment colors ground in oil or japan. Oil colors are preferable as they permit easy removal of surplus antique mixture from large areas. Reduce the color to a consistency equal to varnish, using 10 to 12 parts turpentine to one part of japan dryer. Apply the antique mixture to surface of crystal finish with cloth or brush and allow to dry about ten minutes before removing surplus antique with clean cloth. The coating of antique offers considerable protection to crystal finish. If the finish will be subject to handling or wear, apply one or more topcoats over the antique using a good topcoat lacquer. — H. V. WALKER Co.



Silk-Screened Mirror Paint Lifts

Is there any material or special paint that we can silk screen on glass and then silver in the usual mirror process?

At the present time we are using a very good paint and waterproof varnish, but have a great many rejects on our work because of lifting of the stripes which we screen on the glass. We also get many spoiled ones after the mirror backing, which is a turpentine base, is put on. The puzzling thing of this situation is that this does not happen always, but on certain days. We were wondering if there is any substance that can be added to our present silk screening, or is there a material on the market that would be resistant to the silvering process and can be silk screened?

We are wondering whether the humidity present in the air on certain days would be the cause? —B. L. F. Co. (Mirrors, Framed Pictures).

Many mirror manufacturers and manufacturers of quantity signs, where silvering is incorporated, are using the silk-screen stencil for applying the design. This is accomplished by two different methods.

The old method is to first silver

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one side of the glass and then screen process the design or lettering directly upon the silver backing. After the screen processing paint has dried hard, the silver surrounding the design or lettering is removed by hand brushing, using whiting and water to which is added a small quantity of ammonia. Some mirror manufacturers use a solution of nitric acid (20% to 30%) for removing the excess silver. This is done by dipping and takes only a few seconds, after which the glass is placed in clear water for rinsing. After the field of silver has been removed, we see only a silvered design or silvered lettering from the opposite side of the glass.

If additional outlines or letters are desired in translucent or solid opaques, over the screen-processed mirrored design, these can also be stencil screen printed—although for solid backgrounds the spray gun can be used.

The newer method is to screen process directly upon the cleaned glass with a truly synthetic color. This applies where the lettering or design is to be in colors with a solid mirrored background, the final and protective coat of which can be either screen processed, applied by hand, or sprayed.

For several years I have experimented more or less with translucent colors the like of which could be screen processed on the glass first and silvered afterward, giving a two-tone mirror effect. To date and to my knowledge this has never been accomplished owing to the chemical reaction on the color by either the nitrates or chlorides, henceforth only opaque colors are practical for use in the latter method.

There are colors on the market made especially for stencil screen process mirror work. These must be of a synthetic nature, in such cases where the silver is applied afterwards. Where the silver is laid first, any good oil color can be used with the addition of a little japan gold size or spar varnish for hardening. Where the lettering and design are screen processed first and the silver nitrate solution is applied afterwards, in extreme damp weather, water marks might appear in a few places at the edge of the design on the finished work. This is overcome by letting the glass containing the screen processed design set at least two days for extreme hardening; then clean with whiting and water over lettering and glass, and polish just prior to silvering.

Ceramic colors can be screen processed to great advantage where a color is to be applied before silvering. Naturally, with the use of such colors, expensive equipment is necessary as these colors require firing before silvering, after which they are a part of the glass itself.

There is also a screen process medium on the market for actually etching the design upon the glass, similar to sandblasting. This medium is screen processed in the usual way. The processed glass is left to set a minute or two, then submerged in a tank of running water for rinsing. In another few minutes the etched glass is ready for silvering. Lately this method is being used in quantity production by mirror manufacturers making household mirrors — including the round shock mirror and on down to mirrored glass picture holders.

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1917 DIVERSEY PARKWAY, CHICAGO, ILL.

"Mirroring" is done not only in silver, but in gold, copper, and black. Novel mirror effects are also obtained by silvering colored glass. There is also on the market sheet glass which is clear with a transparent color lamination on one side.

While very fine detail can be obtained with the use of photographically-made stencil screens, both in fine halftone and line effects, there is another photographic process for mirror work which does not require the use of silk screens.

After the glass has been mirrored with the nitrate solution, flow over the silvering, a sensitizing solution made up in the following proportions:

Water (distilled) .....(ozs.) 26
Bichromate of ammonia (powd'd) 32
Eggs (whites of 2).....

Mix together and set aside to stand for at least six hours before straining and applying. Do this work in a dark room by a dim amber-colored light. Flow this liquid over the silvered side of the glass while holding the glass in an upright slanting position. Let excess sensitizing solution drain off into a tray. Allow this applied coating to dry by heat. When the sensitizing is thoroughly dry, place in printing or contact frame against a negative or positive (either of which can be made by hand or by the photo-engraver) and expose to sunlight three minutes, or five minutes to an arc lamp.

After exposure, remove the exposed sensitized glass from the printing frame and roll it with a thin coating of stiff printing ink. Lay the glass, inked side up, in a tray of water for a few minutes. Then take a tuft of cotton and rub the glass gently. In a few seconds, the ink will separate from the unexposed portions, leaving the exposed parts adhering to the silver. This is left to dry as far as the moisture is concerned. The ink, being still wet, is dusted with powdered asphaltum. Heat the glass to the extent of fusing or melting the asphaltum into the ink. Cool the glass and submerge in a weak solution of nitric acid for removing excess silvering from around the design. —HARRY L. HIETT.

I have produced a great many signs that were done on mirrors and I always mixed the screen colors myself. I have always found that a good grade of japan color thinned to screening consistency with a good grade of slow-drying spar varnish or automobile-body varnish did the trick to perfection.

When silvering a job after the paint has been screened, it is very necessary that the paint be thoroughly dry and hard before silvering. A drying oven is a great help in this kind of work as it eliminates all chances of the paint being greasy.

When the paint is thoroughly dry, wipe the glass on the painted side with a 25% solution of 28% ammonia. This wiping must be done in a sort of scrubbing manner. Next rinse thoroughly with running water and clean the entire painted surface with red rouge. Mix the rouge powder with water to the consistency of plaster of paris, as when used in making molds. When the rouge is almost dry brush or scrub it off with a stiff bristle brush. A finger-nail scrubbing brush is ideal for this work. The rouge

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DETROIT CHICAGO ROCHESTER

will absorb any grease or foreign matter on the glass and, when brushed or scrubbed off while in a semi-dry state, it will take all foreign matter with it. This is a much safer method of removing the rouge when silvering over paint than washing or rinsing it off while quite moist.

After the rouge has been thoroughly scrubbed and rinsed off the glass, proceed in the same manner as when silvering clear glass. After silver has deposited and the glass has been thoroughly rinsed with running water and thoroughly dried, apply a coat of a good grade of regular 5-lb. cut shellac. When the shellac is dry, any good grade of varnish color will answer for a backing. The same color or paint used in screening the above job makes an excellent backing.

Unless the shellac is applied directly to the silvering there is sure to be trouble. The acids and other ingredients in the vehicles of any paint that can be either screened, sprayed or brushed will attack the silver nitrates in a short time and cause a discoloration of the mirror. This discoloration appears on the surface of the mirror work in stain line effect. There is no paint on the market today (to my knowledge) that can be applied directly to nitrate of silver without staining. Sometimes it will show in spots almost immediately after the paint is dry, and at times it will take months, but nevertheless it will stain.

Humidity in the air has nothing to do with the bad results in mirroring.

Another way to use the screen in conjunction with mirror work is to have the mirrors copper-plated and the screening done with an acid-resistant paint. After the acid resist is dry remove all excess mirror with a solution made as follows:

Muriatic acid	(parts) 1
Nitric acid	1
Water	5

Dip the screened mirror in this solution for about three to five seconds and the silvering and copper back will be completely removed. Next rinse glass in an acid-neutralizing bath of cyanide of potassium (10% solution). Then rinse with running water and dry, and proceed with the remaining screen work. The copper-backed mirror is the only mirror to which paint can be applied directly without any fear of discoloration appearing on the mirror.

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for mirror work, is to mix your own screen paint. You will always be sure of results; or, have your paint manufacturer grind your colors in a long-oil varnish. This manufactured paint can be ground and mixed to screening consistency by the manufacturer and then you are also sure of satisfactory results.

Greasy or oily paint is not practical when silvering is done after screening, unless it has been oven dried.

Too much turpentine in screen colors is of no use on glass. It makes the paint brittle and also injures the adhesive properties in the paint. Adhesion is the big factor in paint, especially when screening on glass. I never use turpentine or any similar reducer in screen paints.—HARRY L. HILL.

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Preservative Paint for Boat Bottoms

EDITOR'S NOTE—While some of the letters we received with data for the Annual Review of Developments article featured in this issue contain statements that would make good advertising copy, nevertheless we feel inclined to publish excerpts from a few of them because they present facts about materials that will interest a number of readers. Here is one about a new preservative paint for boat bottoms, piling, underground and exposed pipes and timbers, the insides of rinse tanks, etc. The name of the manufacturer will be furnished on request.

"After an exhaustive survey of the conditions existing in the boat owners' and boat builders' field, this corporation decided that the foremost requirement necessary was a protective coating that would endure for more than a season the ravages of salt water and air, and give greater protection to surfaces exposed to boring and clinging pests.

"Noting that a certain vehicle offered ample weather protection but did not protect against various parasites, while various solids protected against parasites

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Let us state — by introducing under trade mark (Reg. U. S. Pat. Off.) BLANCHIT, finishes of lighter than natural wood color became available. Inimitable productions possible. Your furniture really modern.

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without preserving against the elements, the thought was suggested of a method of combining the various materials into one product that would offer these several features.

"This resulted in a product which has proved to be above any other of its kind offered on the market as a preservative and protective coating for surfaces subjected to severe elemented exposure.

"Tests over a period of ten months indicate that the protective and preservative qualities are up to the expectations and claims made by the manufacturers."

« Furniture Polish »
(One of the New Items)

THE MASS of material from which this year's Review of Developments in Finishing Materials was prepared contained much interesting and valuable information that could not be properly condensed to appear among the regular items in the Review. For example, the following data about the development of a satisfactory formula for a new furniture polish struck the Editor as being especially interesting:

"We have had a real laboratorial problem on this item (18 months of study, tests and research) and it really looked like a hopeless job, for we had determined that unless we could bring out a formula that was definitely worthwhile, we would forget the item altogether.

"Just another oil polish with its usual tendency to 'fade out' as the oil evaporates, or a pretty cream oil emulsion that would

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MAGIC TACK RAGS remove specks, lint and sand particles--- bring out that deep, smooth luster, produce a faultless surface for white or colored finish. Why use "home made" tack rags when you can buy MAGIC TACK RAGS at trifling cost! They are tackier, do not dry--- are dust-proof and spontaneous combustion proof. Packed in dozen and gross lots or more. Made only by the

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Rubberized Fabrics—Flock Printing—Velour Paper—Moulded Plastics—Spray Gun Equipment (For Woods, Metals, Paper and Glass)

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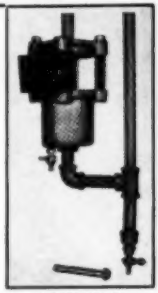

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look good for a few hours or a day and then disappear, certainly would do our company more harm than good. The abrasive type polishes left a white film in the crevices of carvings. There seemed a real problem to solve from all angles.

"A study of wax polishes showed them to have more possibilities, but this seemed a step backward rather than a step forward, for all of the wax polishes we investigated were similar to the old oil or paste wax that folks used on their floors and which left a soft mushy and smeary film on the surface. This even held for those few wax polishes that carried a percentage of carnauba wax, for the oily solvents reduced the hard carnauba wax down to a softer substance than beeswax.

"It appeared to be a problem of combining the good points of three different types of polish rather than undertaking an improvement on any particular type. We were about to 'throw up our hands' during the Spring of 1936 when we uncovered an old Wilbur White formula that had originally been developed at Owego.

"This formula started us on the right track, as it contained both hard carnauba wax and the proper oils that were beneficial to furniture finishes. By adopting our usual technique of blending the right ingredients, we produced a material that actually lays a wax film which is hard to the point that it repels dirt and dust, and eliminates the necessity of frequent re-applications. In other words, a light dusting with a soft cloth makes it continue to maintain a beautiful luster, and the protecting film of wax stays 'put,' whereas the usual furniture

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polish film quickly dries out and completely disappears. Keep in mind that this material does just as fine a job on finished metal work, such as file cabinets, office equipment, metal doors, grills, etc., as it does on the finest wood surface. There is absolutely no tendency toward streaking, and the material is practically foolproof.

"This furniture polish is a smooth fine-particle colloidal emulsion, distinguished from other polishes by a slight pink color cast and by the fact that it is odorless. We have not used kerosene oil but, as mentioned above, a carefully selected and blended combination of oils that are definitely beneficial to the surface. Although this furniture polish does a good cleaning job, you are assured that it will not in any way harm the finest or the most delicate finishes. It positively contains no acids, strong solvents or alkalis."

The name of the manufacturer of this polish will be given on request.—Editor.

Letters from I. F. Readers

(Continued from page 9)

get in touch with contractors or architects acquainted with that type of engineering, and will be very glad to get your suggestions.—B. F. Co. (Store Fixtures, Display Counters).

Midwax and Minwax

In reply to the inquiry about "Who Makes Midwax," published in Dec. issue, page 77, one of our readers writes that "Midwax" is a product of the Midland Chemical Laboratory Inc., Dubuque, Iowa.

Several others write in and sug-

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1. For temporary protection against chemical or physical surface injury during manufacture, storage and shipment.
2. Combines features of permanent protection with ease of removal and ease of application.
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5. Sold as a concentrate, to be diluted with distilled water to meet individual requirements.
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(Details next month)

gest that the inquirer must have in mind "Minwax" which is made by the Minwax Co. Inc., 11 W. 42nd St., New York, N. Y. One reader sends us a "Minwax" folder from which we learn that this material is a wax finish in standard flat finish, quick-drying flat finish and in the finishing wax, the former two being available in clear or transparent colors for use in building up a penetrating and wax surface finish, starting from the clean bare wood . . . . for use on wood floors, interior woodwork and furniture.—Ed.

Dipping Water Dye

In June issue of INDUSTRIAL FINISHING there was an article by H. H. Ford, relative to dipping water dye. The item referred to application of silver and gold plate; also colors. We are interested in locating the supplier of these dyes, and will appreciate your forwarding the information if you can do so.—N. I. Co. ("Gold Medal" Toys and Games).

In the June issue INDUSTRIAL FINISHING, on page 29, we see an article by H. H. Ford relative to dipping water dyes. We are wondering if you could furnish us with the name of the manufacturers of such a dye, as we would like to contact them for samples for experimental work.—S. T. Co. (Garment Trimmings, Snap Fasteners).

This is a product of Zapon-Brevolite Division of the Atlas Powder Co., North Chicago, Ill.—Ed.

Wood Preservative

We will appreciate it if you can advise us of any treatment or solution that can be applied to lignumvitae that will prevent it from cracking open. Also advise us if there is a liquid solution on the market that is made to harden wood. We have been advised that there is such a solution which, when applied, penetrates the wood and leaves a very hard surface after drying. It is not a varnish or lacquer, but a solution that the wood soaks in.

If there are no items of this nature on the market, perhaps you can advise us of a formula which would give the results we are seeking.—K. Z. Inc. (Architectural Woodwork).

Perhaps you have in mind the Temp-Urd Wood process published in the "What's New" section of IN-

DUSTRIAL FINISHING for August 1935 (page 46). This was formerly offered by the Pyratone Products Corp., but we understand that it has been taken over by the Phenolite Corp., 309 St. Johns Court, Chicago, Ill. —Ed.

Vapor Degreasing

We are trying to obtain information concerning Vapor-type metal cleaners and, if possible, we should like to get in touch with the companies who manufacture or sell the machines. We shall be grateful for any information you can give us, since we have the problem of cleaning a large line of metal products for lacquering.—J. J. Co.

"Vapor Degreasing" is a patented process of cleaning metal. The licensed companies that supply equipment and products for this purpose are: Rex Products & Mfg. Co., Detroit, Mich.; G. S. Blakeslee & Co., Chicago, Ill.; E. I. duPont DeNemours & Co., Wilmington, Del.—Ed.

Pontalite

I see an article in the Scientific American where some company is putting out a new transparent resin compound called "Pontalite." I don't think Scientific American answers any letters, so I wish that you would let me know where I can buy this compound.—W. C.

Pontalite is "a new duPont plastic material for industrial use" offered in sheets, rods, tubes and molding powders. For further information, write E. I. duPont deNemours & Co., at 350 Fifth Ave., New York, N. Y., or Wilmington, Del.—Ed.

Respirators

In INDUSTRIAL FINISHING magazine for February 1935, on page 38, we see an article entitled "Protection by Respirators," by W. H. Rohr. At this time, we are in need of a respirator to be used by employes dipping chairs in natural varnish. Will you kindly put us in touch with manufacturers of a respirator that we could purchase that would be of value in this work and give us good service?—D. X. Co.

The following companies manufacture respirators: H. S. Cover, South Bend, Ind.; Chicago Eye Shield Co., Chicago, Ill.; Mine Safety Appliances

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Ideal for brush, spray and especially for dipping tanks. Highly water-proof and heatproof.

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720 S. Meridian St., Indianapolis, Ind.
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Distributors of entire Binks line.

Co., Pittsburgh, Pa.; Pulmosan Safety Equipment Co., Brooklyn, N. Y.; Willson Products, Inc., Reading, Pa. —Ed.

Graining Plates

In the issue of INDUSTRIAL FINISHING for December 1934, on page 15, there was an article by Arman Fahrer. The author mentions in this article the use of graining plates. We have been very anxious to get in touch with some manufacturer of these graining plates. Could you put us in touch with Mr. Arman Fahrer, and also some other company making the graining plates?—T. Casket Co.

The Oxford Varnish Corp., United Artists Bldg., Detroit, Mich., can supply graining plates. Also, the Graining Equipment Co., Nashville, Tenn.—Ed.

Cleans Graining Rollers

Our finishing room foreman called our attention to the article on page 66 of December issue regarding the matter of clean graining rollers. We have a cleaner that we used a number of years ago, which we used when we were making grained tops. We have no use for it now and we would be glad to dispose of it. If we had the name of the concern that is interested we would be glad to take the matter up with them, or you might have them write us if you so desire.—O. Furn. Co.

Rubber Plating Process

I have just finished looking over your publication and thought that you might be interested in our new Rubber Plating Process. This work is very rapidly becoming an important factor in metals and wood finishing fields. As a matter of fact, we get more inquiries about this one type of work than many of our other products which have been in existence for as many as 20 years.—B. B. S. (With Mfr. of Electroplating & Polishing Equipment & Supplies).

Aircraft Finishing

I am desirous of securing information that I believe you published in your magazine some time this year, regarding the finishing of airplanes. I have endeavored to keep all the old copies of INDUSTRIAL FINISHING,

but am unable to find an issue older than September of this year.

Will you please send me the major articles published this year on airplane finishing—those dealing with the latest methods and helps? It will be entirely satisfactory if you tear out the articles so as to make a smaller mailing package.—J. M. S.

Acid-Proof Finish

We are interested in the inquiry in November issue (page 6), and are wondering whether you could furnish us any practical suggestions on a finish which would be acid proof. —C. F. & T. Co.

Detroit Rex Sales Conference

A conference of the Regional Sales Managers of Detroit Rex Products Co., 13005 Hillview Ave., Detroit, Mich., was held at the Detroit Office of the company December 16 to 20th inclusive. Plans were formulated for doubling the sale of degreasers, solvents and alkali cleaning compounds during the ensuing year.

New Representatives For Maas & Waldstein Co.

The following new appointments are announced by Maas and Waldstein Company, makers of lacquers and enamels, Newark, N. J.:

Export Manager, Henry R. Jahn, 7 Water St., New York, N. Y. Mr. Jahn, who has been in the exporting field for 22 years and has connections in practically all of the trading centers of the world, will handle the distribution of Maas and Waldstein products in foreign countries.

New England Representative, W. C. Treadwell, 22 Vine St., Melrose, Mass. Mr. Treadwell is a finishing engineer with long experience in the electroplating, metal finishing, and shoe manufacturing industries. He will cover all of New England.

New York-Pennsylvania Representative, John Dahlquist, 411 Forest Ave., Jamestown, N. Y. Mr. Dahlquist, while well informed in all phases of the art of finishing, is a specialist in the finishing of wood and furniture. His territory for Mass & Waldstein includes western New York and northeastern Pennsylvania.

A grained leather effect that gives metal surfaces an element of "warmth" is produced by special finishing.

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THE LEON J. BARRETT COMPANY

Grafton Street Worcester, Mass.

Industrial
FINISHING

Distributed to Executives and Foremen Finishers in industrial plants where finishing coats are applied with finishing equipment

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EDITORIAL

Review of Developments—A Parade of Best Sellers

Every industrial user of finishing materials, regardless of how busy he may be, will have several good reasons for "taking time out" to carefully look over the items in the Annual Review of Developments featured in this issue. In the first place he may expect to find something he can probably use advantageously now or in the near future in his own establishment. It's good business to inquire about such items and investigate their merits, possibilities and prices.

In the second place it's reasonable to assume that the items listed in this Review really represent a "Parade of Best Sellers" from a large number of concerns specializing in research, development, manufacture and sales of several different types of finishing materials. For example, one manufacturing laboratory, when submitting data on some of its items, stated in a letter to the Editor that:

"We have had so many new and radical developments during the past year that it is somewhat of a problem for us to pick out the ones that are really outstanding; however we are sending you, on the attached sheet, write-ups of several of these products all of which we know are interesting to the finishing industry, as their sales have mounted rapidly since their introduction.

"We might say at this time that we always look forward with particular interest to the January issue of your magazine wherein you publish the newest developments during the year. We are firmly convinced that this is the type of help, from both a manufacturer's and user's standpoint, that builds good will and furthers the use of finishing materials."

Another manufacturer declares that:

"We could mention many more of these products. However, we do propose to introduce a good many of these through advertising in your worthwhile journal . . . ."

Still another manufacturer confessed that:

"We delayed replying to your letter of November 12, 1936, try-

ing to determine if the principal new product we had developed would be interesting to your readers, because we did not know your magazine went to the class of trade which would be interested in this product, namely, Process Paint, but after reading your last number and noting an article therein on the subject, we decided we were wrong."

Excerpts from numerous other interesting letters could be given, each one revealing or suggesting or emphasizing in some different way the value of the Annual Review of Developments to both manufacturers and users of industrial finishing materials. Be sure to keep this issue of the magazine on file where you can refer to it again and again in the future.

Making Research Pay; Sales Demonstrations

Such a very interesting and valuable suggestion to all manufacturers is given by an article in the "Notebook," published by Laucks Laboratories of Seattle, Wash., that we feel prompted to reprint the following excerpts from it:

"Now we go one step further .... and show how research pays doubly .... how it not only develops new methods, new products and new uses for old products, but also, if intelligently utilized, how it can be made to produce sales on its own behalf, as a direct and not merely indirect result of its employment.

"To illustrate: Recently a West Coast manufacturer served by this laboratory brought out, as a result of research, a line of waterproof tempera colors for tinting casein paint and for art and fresco work. Here one might have thought was the end of research's usefulness—the new product had been created. But not so. The laboratory service showed that client how he could visualize the research which made that product superior.

"Cards were made up on which two cartoons were drawn, one in ordinary showcard colors, the other in the new waterproof colors. The company's salesmen were shown how to demonstrate the waterproof quality by drawing a wet finger across the waterproof color and then across the ordinary color. The result, and the subsequent sales, spoke for themselves.

"Simple? Obvious? Certainly, but effective and profitable, too. It was the visual application to research. It made the most of research by dramatizing research, by using over again its results in such a way that not only the production department of the business but also the sales department could use it and profit by it.

"Another example: A waterproof glue which took years of research to bring to perfection was developed in the research laboratory. The manufacturer might simply have come out with the announcement that he now had a waterproof glue .... and his listeners would have taken a polite interest in his story and gone on to ask how the wife and children were, etc. Instead, this manufacturer provided his salesmen with bottles of water in which two pieces of wood, bonded together with the new glue, were submerged. The little demonstration spoke more loudly than if

they had hired a hall. It visualized the research that made the product possible. It interpreted the results of the researcher's work in visible, understandable terms. There are innumerable other examples, many of which may occur to the reader.

"Frequently research has provided the peg upon which a whole advertising campaign for a product has been hung . . . . an advantageous sales point that has been revealed or actually developed in the laboratory, which when pointed up and dramatized by the advertiser in a thousand different ways intrigues, interests and convinces the buyer.

"An advertising agency planning a campaign on some particular product needs to know: 1) the technical properties of this product; 2) the research story back of its development; 3) how this product compares technically with competitors in the field; and 4) how this product satisfies the needs of the user in a technical way. All of these questions are answered in the laboratory.

"The principle is sound and its success has been proved by honest, original-minded merchandisers. No alert manufacturer will overlook the opportunities of improving his position by research. He can suffer only by bad applications of the technique, which always can be avoided by referring his plans back to the research worker."

Manufacturers' Panels Reveal Progress

One marvels at the beauty displayed by the finished panels that manufacturers of finishes have about their offices and laboratories. Perhaps it would be a revelation for prospects and customers to see more of these panels and realize the extent to which manufacturers go to provide finishes that will satisfactorily meet the exacting needs of the industrial trade.

In getting together the editorial material for this Review Number, and visiting in some of the offices of manufacturers, it has been the Editor's privilege to see panels of all kinds, some revealing all the beauty of the natural wood enhanced by the application of just the proper materials; others of an opaque character show what decorative features can be developed in the use of plastics, enamels, crystallizing lacquers, etc.

Considerable progress has been made in the development of coatings for metal, coupled with cleaning and rust-proofing compounds and primers to provide the proper foundation. Doubtless, the fact that product designing has gained an important position in industry can be attributed to the

progress made in formulating new finishes.

That the industrial trade is on the alert for finishes that will more effectively meet its needs is shown almost daily by the inquiries which reach this office seeking sources of supply for different materials. Actually, the trend is revealed each month in the editorial section headed "Letters from Readers of INDUSTRIAL FINISHING."

Automobile Exhibit

THE accompanying illustration shows part of the remarkable revolving showroom floor at the Chrysler International Automobile Salon in the Chrysler Building, New York, N. Y. The revolving "ring" 51-ft. in diameter, accommodates five cars, is flush with the stationary floor outside and the island inside. It turns silently on roller bearings at the rate of four revolutions an hour.

Illumination of the revolving floor is provided by two circular and concentric lighting troughs set flush with the ceiling and corresponding with the inner and outer edges of the turntable. These project a concentrated beam of light through glass filters in such a manner as to give an effect of the cars being continually bathed in soft colors. Interiors and under parts of cars on the revolving floor are illuminated from light receptacles placed on the floor itself.

The main floor and stationary island are of a mottled gray. The revolving floor is a darker shade. Walls have a plain plaster and muslin covering painted a neutral tone of blue to harmonize with the light and color schemes of any cars displayed. Certain alcoves are done in a rust finish. Ceiling surfaces are covered with gray acoustical material which serves to reduce noise and reverberation.

Classified Advertising

PAINT DEPARTMENT SUPERINTENDENT

Desires change. Twenty-five years' experience with leading companies; employed at present. Has ability to produce high-grade work on production basis. Thoroughly familiar modern processes. Excellent color and graining man, desire to associate with wide awake manufacturer, whose paint department requires capable executive. Can furnish excellent references. Address IF-648, care Industrial Finishing.

POSITION WANTED

As Finishing Foreman in Southern Furniture Factory only. Several years' experience in production factories. Best of references. Now employed. Address IF-649, care Industrial Finishing.

INSPECTOR

Desires position, preferably in small city or town. Thoroughly experienced in production, construction and finishing of quality furniture and radio cabinets. Will furnish references. Address IF-647, care Industrial Finishing.

SALESMAN WANTED.

Leading manufacturer of wood finishing supplies, lacquers and varnishes, located in Philadelphia, catering to furniture and metal trades, seeking services of experienced salesman with some following in the New England Territory among furniture and woodworking factories and metal trade. Our products are known in New England. This is a real opportunity for a high-grade salesman who has traveled the territory. Liberal drawing account against commissions. Must furnish first-class references as to ability and integrity. State full particulars. Address IF-650, care Industrial Finishing.

SALESMEN WANTED

Who have a trade among the metal finishers to carry a side line of Gold and Aluminum Bronze Powders and Aluminum Paste. Attractive proposition and restricted territory to men who have a following among this industry. State territory and class of trade calling on. Address IF-651, care Industrial Finishing.

INDUSTRIAL FINISHING SALES REPRESENTATIVE

With established following wanted by reputable eastern manufacturer. Attractive proposition for immediate business. State volume and territory covered. Address, IF-639, care Industrial Finishing.

SALESMAN WANTED.

We are opening up new territory and have the Pittsburgh-Wheeling district open for an aggressive high-grade salesman. We cater to the industrial trade only and have a high-grade line of paints, varnishes, enamels and lacquers. Must have an experienced man who knows the trade. An attractive proposition for the right man. Address IF-644, care Industrial Finishing.

SALESMAN WANTED.

To cover industrial trade in Wisconsin territory. We make a complete line of paints, varnishes, enamels and lacquers and want an aggressive high-grade salesman acquainted with the trade in this territory. Preferably one who is employed but looking for a greater opportunity than he has at present. We will make an attractive proposition to the right man. Address IF-640, care Industrial Finishing.

FOR SALE—CHEAP.

1000—6′ channel iron roller bearing dry-kiln trucks. Only $1.90 each.
1450—Black Bros. turnbuckle veneer retaining clamps, rods 1″ diam., 35″ maximum opening and 29″ minimum, while they last. Only $1.75 each.
1—32″ Nash 5-spdl. Auto. Spindle Sander, $790.
CHAS. N. BRAUN MACH. CO., Fort Wayne, Ind.

PAINT SPRAY EQUIPMENT.

New Type MM Milburn Paint and Lacquer Spray equipment will more than pay for the cost of installation. Easy to handle—convenient to clean—sprays all types of material. Write for new Type MM catalog.
THE ALEXANDER MILBURN CO., 1402 W. Baltimore st., Baltimore, Md.

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ANNUAL FINISHING EQUIPMENT ISSUE

Next Month